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ORIGINAL LECTURES.

CLINICAL LECTURE ON EPILEPSY.

Delivered at the Hospital of the Medico-Chirurgical College of Philadelphia

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C. F., æt. 28. Does not remember ever having any acute illness, though when a child about two years old he suffered from convulsions said to be due to teething. At fourteen years of age he enjoyed good health, except occasionally feeling very fatigued and depressed in the morning on awakening. He could not explain these peculiar sensations. He felt bruised all over, and upon two occasions an involuntary discharge of urine and fæces had occurred during the night. He thinks he had these symptoms about once every two weeks for a period of two years. Then he fell down one day unconscious, as if struck by lightning, and the bystanders told him later that they had noticed a peculiar distortion of his face during the attack. A few weeks later, while sitting at dinner with his family, he had another similar seizure. He fell from his chair and was unconscious for several minutes, but this time his whole body was convulsed with tonic and clonic spasms, for his very intelligent mother tells us that he first appeared rigid and stiff all over, his fingers were spread far apart, and then all his muscles worked in the most frightful manner. He has since had many such attacks: in all of them he lost consciousness and general convulsions attacked his muscles. These seizures still continue: they recur about once every three weeks. He informs us that he sometimes knows a minute before that the attack is near: a peculiar giddiness overcomes him, and his fingers seem to fall asleep. This numbness in the fingers gradually extends up both arms; when it reaches above the shoulder a dark veil appears to pass over his eyes, and he then loses consciousness. Occasionally, however, this prodrome, known by its technical term as *aura epileptica*, comes on without being followed by a seizure.

During the interval between the attacks he enjoys fair health, but he is positive that his memory is getting weaker, and he experiences daily less ambition and feels less and less inclined for business. His mother also says that his temper is changing: he becomes more and more of a morose disposition, is irritable and unsociable. After these attacks he is usually very sleepy, feels depressed and bruised all over, and generally lies in a heavy slumber for six to eight hours. A few times, however, he became very violent immediately after the seizure; he was so excited that his mother feared his becoming insane.

Regarding his family history, his mother suffers frequently from migraine, or sick headache, an uncle of his had the same attacks and died in one of them, and one of his sisters is said to be affected with hysteria.

Before I speak of the nature of his ailment, let me introduce two other patients to you.

A. M., æt. 11. Had measles, chicken-pox, and whooping-cough, but was otherwise well up to her seventh year, when, one day, while carrying a glass of water, she suddenly stopped in her walk, her eyeballs became fixed, the glass in her hand shook violently, a deadly pallor overspread her face, and she shut her jaws tightly with a snapping noise. All this lasted scarcely ten seconds, when her natural condition returned, and she continued her walk as if nothing had happened. She has since had many such seizures, at least half a dozen a year, and she is still subject to them. They overcome her at any time, and when the attack is over she has no recollection whatever of what happened. Neither are there any prodromes to warn her of the coming paroxysm. In some of them she squints, in others her face becomes distorted. Her mother suffers greatly from neuralgia; otherwise no neurotic tendency can be discovered in her family history. The little girl is well during the intervals, but is not very bright in school.

R. W., æt. 19. Had measles, scarlet fever, whooping-cough, and smallpox. When three years old had convulsions. At fourteen he had a peculiar attack, in which he was suddenly seized with a desire to break up everything, and would have done so had he not been forcibly restrained. This paroxysm lasted four hours. During the following two years he had three similar attacks. Then, one day, he used for the first time the opportunity offered him by his father's keeping a drinking-saloon to become drunk. While in this condition he became so violent that his parents thought of removing him to an institution for the insane. But the attack passed off rapidly, scarcely lasting two hours. He has, however, since had a number of them: they seem to come on every four months. During the interval he has an aversion to liquor and is a well-behaved and kind young man. His parents, as well as he himself, can predict the paroxysm about a day before. He becomes very much depressed in spirits, complains of sleeplessness, and is very irritable. But the attack itself sets in with lightning-like rapidity. He says that he feels an irrepressible desire for whiskey, and is certain that he would commit any crime, when in this

condition, to obtain it. Scarcely has he touched the first drop when a force within him drives him to acts of violence, and this force increases in the ratio in which he meets with obstacles in their execution. He exhibits during this time an extraordinary strength, is regardless of all consequences of his deeds, and has more than once felt a peculiar, uncontrollable desire to cut off the heads of other people. When the seizure is over, he has but a dim recollection of what has happened.

Gentlemen, all these cases are instances of the disease called epilepsy. When in the central nervous system such a permanent change has taken place as to give rise to convulsive attacks, during which the patient is either totally unconscious or loses at least the consciousness of his mental acts, we have the disease epilepsy. When but one such paroxysm occurs, or several of them when they follow in rapid succession, and when there is a local cause of irritation, on the removal of which the attack ceases (as the outbreak of a tooth in children), we name the disease *eclampsia*. In this there is no permanent change in the central nervous system. What the essential change is in epilepsy we cannot yet say. Often gross alterations are found, as asymmetry between the two hippocampi majores, or narrowing of the foramen magnum, or hyperæmia of the meninges of the brain; but these are either, like the last, the effect of the repeated attacks, or they may be, like the first two, primary causes producing the epileptic change. With a remarkable constancy in all thoroughly-investigated cases, a peculiar microscopic morbid change has been discovered in the medulla oblongata. This consists in a dilatation of the capillaries, in a degeneration of their coat, and in fatty degeneration of the nerve-fibres in the medulla oblongata. But, as this condition is the more developed the longer epilepsy has existed in the body, it may be presumed that it is due to the frequently-repeated disturbances of circulation of the brain induced by the seizures. Of late it has been demonstrated that a peculiar morbid change occurs primarily in the cells of the cervical sympathetic ganglia, and at present, until more definite proof can be given, we must consider this change as the underlying pathological condition of epilepsy.

Formerly many forms of convulsions were all included under the name of epilepsy. To-day, when a gross lesion of the brain, as for instance a tumor or hemorrhage or any other large effusion, or an embolus, or hyperæmia, gives rise to attacks accompanied by loss of consciousness and spasmodic movements, we name the disease such,—viz., tumor of the brain, cerebral hemorrhage, etc.,—and say that it is complicated or associated with epileptiform convulsions.

Recent researches have proved that a disease, to belong to the category of epilepsy, must have as an underlying pathological condition the permanent central change above mentioned; and that neither the coma nor the convulsions are essentially necessary to stamp the malady epilepsy. Accordingly, we have four varieties of this complaint:

(*a*) *Epilepsia gravior*, or *haut mal*, where the paroxysms are characterized by complete coma and general convulsions.

(*b*) *Epilepsia mitior*, or *petit mal*, where only loss of consciousness occurs, but no convulsions.

(*c*) Transition forms, where either of the two main symptoms of a seizure may be more or less present in the attack.

(*d*) Epileptoid states and irregular forms, where certain symptoms, as delirium, occur in paroxysms during which the patient is not aware of what he is doing, or where, after free intervals, the patient is suddenly seized with an irresistible desire to commit certain acts, generally of violence, of which he has no, or but a dim, recollection after the paroxysm is over.

To the last category belong cases of pyromania, kleptomania, and the on-the-spree-going cases of dipsomania, as our case R. W.; while A. M., the little girl, is a case of petit mal, and our first patient, C. F., a case where from petit mal the graver form, haut mal, gradually developed itself.

I will also draw your attention here to a fact observable in C. F. You saw that his face had a peculiar apathetic expression, evincing a faint resemblance to mild idiotism, accompanied by a pale, cachectic look of its own. This face, characteristic of all typical cases of epilepsia gravior, is called the "epileptic face," or, with the Latin name as a technical term, *facies epileptica*.

Generally we find a neurotic tendency in the family of an epileptic, and if the

disease is hereditary the offspring is apt to suffer from eclampsia during first dentition. In all cases we may have prodromata, or they may be absent. It rarely occurs to find remote warning symptoms; they then usually happen from one to four days before, and consist mainly in changes of the mental faculties. Immediate prodromata are met with in about half the cases. As I told you, they are known by the name of aura epileptica. Do not imagine that this aura must be a sensation as if something were blown at the patient, starting from some part of the human body and gradually creeping up until consciousness is lost and the attack begins. Any sensation whatever immediately preceding the paroxysm is an aura. These sensations, according to Nothnagel, may affect the motor, vaso-motor, or sensory sphere, or special senses, or any organ. Sometimes the patient feels a twitching in one group of muscles, or a sensation of numbness associated with paleness of the skin attacks one limb, or a peculiar pain anywhere in the body precedes the seizure, or the patient sees spots before the eyes, or hears strange noises, or rumbling is going on in the intestines, or gastralgia or palpitation announces the coming paroxysm. There is almost no sensation that may not appear as an aura epileptica. Vertigo, however, seems to be the most frequent. And it is by no means a fact that the same aura will always reappear in the same patient; nor is it true that the aura is always followed by a seizure, even in the same individual. At one time the aura is certain to be the forerunner of a paroxysm, the next time the attack will not come.

In haut mal, whether there is an aura present or not, the seizure itself is apt to be as sudden as a stroke. Scarcely ever has the patient time to take into consideration his surroundings and to select the position into which he is to fall. There are instances on record where a patient fell into a fire, or immediately in front of a pair of spirited horses, and I have myself seen a case, in the lower part of our city, where a woman, while ironing her wash, was seized by an epileptic fit while in the act of taking a fresh iron from the red-hot stove, and fell with one-half of her face upon the hot stove, utterly destroying one eyelid and the neighboring tissue. Often the patient utters a shrill cry, as Romberg said, "terrible alike to man and beast." The deep coma rarely lasts longer than from one-half minute to three minutes, though the time appears far greater to those witnessing such a fit. During this coma two periods may be recognized. During the first, the muscles are in a state of tonic spasm,r igid; during the second, clonic spasms show the by-stander the picture of the most fearful distortions.

When the attack is over, the patient usually opens his eyes as if awakening from a deep sleep, often mutters some words indistinctly, and then falls asleep, which sleep lasts from ten minutes to eight hours. He may then return to his normal state, or feel fatigued and bruised for some hours or some days, or evince an altered mental condition, becoming excited and even wild. But after at the latest four days he will return to his normal state. His memory, however, is getting weaker almost after every fit, a peculiar lassitude and apathy gradually developing more and more, the mental faculties also slowly undergoing a change, which finally, if the patient live long enough, is apt to end in the symptoms of softening of the brain or some form of insanity.

A patient seldom dies in an attack, and death from suffocation due to spasm of the glottis is one of the rarest occurrences: it happens, however, when many seizures follow each other without interruption. Occasionally death has taken place from a piece of meat or other food lodging in the trachea, the attack surprising the victim while eating. Other accidents, to which the patient is exposed by the liability of the paroxysm overcoming him in any position, may also bring about the fatal result. But most frequently we find intercurrent diseases of the lungs to cause the death of these patients.

In a considerable number of cases the attacks happen during the night. That a seizure of nocturnal epilepsy has occurred we may suppose when the patient feels very dull, fatigued, and sleepy in the morning without there being any apparent reason for this morbid condition, and when there is evidence of involuntary alvine discharges having taken place during the night. Our first patient evidently once suffered from such nocturnal attacks.

Diurnal epilepsy, however, is the far more frequent form of haut mal, while petit mal happens oftener during the night, though also rarer than in daytime.

Some cases of epilepsia mitior occur when the seizure is so mild that the patient, for instance while walking and speaking to a friend, simply stops talking for a second or two, but continues automatically his step. He is apt even to go on in the conversation where he interrupted it, and one not aware of the attack will notice it as little as the patient himself, who usually has no idea of what happened. Still, not all cases of petit mal are so mild; in some the loss of consciousness is complete, there is well-developed coma, and the patient falls down in any attitude and regardless of his surroundings.

Among the irregular forms we find all possible varieties. Nothnagel speaks of a case where the patient suddenly jumped up from a chair on which he was sitting, and ran about the room like a maniac for over a minute. He then again sat down, and, besides his feeling sleepy and tired, had but a faint recollection of what he had done. Sometimes the unconsciousness is so momentary in these forms as to appear not to be present, while spasmodic motions of some kind or other continue. When convulsions do not accompany these seizures the attacks generally assume peculiar manifestations of locomotion, as in the case of Nothnagel. Some will run around in a circle, others in one and the same direction, and still others run a certain distance and then stand rigid, so that the clonic spasms seem to precede the tonic, a fact at times also observed in haut mal. Any group of muscles may become thus affected; occasionally only squinting or distortion of the face, or violent flexion of one limb, constitutes the attack, with or without the coma.

The so-called epileptoid state, no matter what type it may assume, always evinces some mental change. The main points regarding diagnosis are the following. The seizures must come on suddenly, at most be preceded by an aura; they must recur a number of times without any symptom denoting an organic lesion of the brain or a mental disease being discoverable in the interval; in these attacks the patients must experience within them an irresistible desire, forcing them to commit certain acts which in their normal state they would never think of executing, would perhaps abhor, and finally, when the paroxysm is over, they must have no recollection, or but a dim one, of what happened during the seizure. We have an instance of this kind in our last patient, and most cases of pyromania, kleptomania, and dipsomania belong to this category. What peculiar shape such paroxysms may assume you will be able to guess from the following well-known instance recorded by Trousseau. An eminent judge in Paris, while delivering his charge to a jury, suddenly stopped in the middle of a sentence, went to a corner of the hall and there micturated in the presence of all assembled, then returned to his seat on the bench and continued the sentence where he had broken it off, not knowing what he had meanwhile done. I saw not long since an elderly lady who suddenly, in the presence of visitors, undressed herself, threw off all her clothing, and acted as if she were taking a bath. These attacks returned about once a month, and the only recollection she had of it was that she suddenly imagined herself to be standing before a bath-tub. What then followed she did not know until she found herself completely undressed.

In general, epileptics possess a strong muscular frame, though there are many weak and enfeebled individuals suffering from the disease. A large class of these patients appear to be ailing only during the paroxysms, exhibiting in the intervals the appearance of thoroughly healthy persons. This fact seems to prove that in true epilepsy we must never look for the morbid change in the nervous system at large, but in a localized spot, the medulla oblongata and pons, or primarily in the cervical ganglia. There are, however, patients who show disturbances in the intervals. Such manifestations may belong to the motor sphere, in which case they usually appear in the form of tonic or clonic local spasms, as for instance in cramps of the calf, or they may affect the sensory system, as headache, vertigo, confusion of the head, etc. In the majority of cases the mind is affected in the interval. According to Reynolds, one-third of all cases evince no affection of the mind; and that the disease may be present in persons with the highest intellect cases like those of Cæsar, Napoleon, and Petrarch prove but too well. Usually the morbid condition of the mind is of minor degree, weakening of the memory, as I mentioned before, being the most common symptom

of all. It is peculiar that epileptics have their memory enfeebled mainly as it relates to recent events, while they often remember very well facts which happened long since.

In some this loss of memory is but the beginning of the end: the mind becomes affected more and more, and the disease slowly but surely leads ultimately to complete imbecility. Griesinger, in speaking of this mental deterioration, says, "The memory decreases; the imagination grows dull; the fancy loses its richness of coloring, its intensity and warmth, and the spirit is withered. The physiognomy and bearing are altered, the lips of the patients grow thick, their features coarse, and they acquire a hideous expression of countenance. A final decline into imbecility is the sad destiny of many of these patients." Such cases do not give the least promise of a cure.

When we for a moment regard the causes that may develop such a deplorable state, we can only acknowledge our ignorance. The most careful investigations instituted by Reynolds have elicited the fact that neither the severity nor the number of seizures has the least influence upon the condition of the mind. Cases have been recorded where the patient had but three or four mild attacks in one year, and still imbecility set in with surprising rapidity, while, again, others just as numerous have been described where patients had during a period of ten and more years more than two thousand attacks of haut mal and still the mind continued perfectly clear. If the paroxysms have anything to do with the production of the mental disease, it is in the rapidity with which they follow each other. Persons who suffer from ten to twenty attacks within one or two days and then have no fit for a month or longer, when the same number of seizures again returns in rapid succession, seem more liable to a morbid mental condition. In those cases where haut mal and petit mal alternate with each other in the paroxysms, imbecility also appears more frequently.

These facts seem to indicate that genuine uncomplicated epilepsy, *toute même chose*, probably never exerts any influence upon the mind. Where imbecility complicates the complaint, we have perhaps to do with another malady accompanied by epileptiform convulsions. And I believe the same truth holds good with regard to other pathological manifestations which occur in the interval. When we consider that probably two-thirds of all cases of epilepsy not only evince no other morbid symptom of any kind (except perhaps a few, which, as headache, giddiness, change of temper, and moderate loss of memory, are directly caused by the often-repeated, sudden alterations in the cerebral circulation), but that they even continue in a remarkably good state of health until some accident or some intercurrent disease, as pneumonia or tuberculosis (which might have attacked them if they had not suffered from epilepsy), brings about the fatal end,—when we take this fact into consideration, I say, we cannot but conclude that true epilepsy is a disease *per se*, with no other manifestations besides the paroxysms, and that every case complicated by any of the phenomena mentioned is an instance of some other disease associated with epileptiform seizures.

Experiments instituted by Hitzig, Ferrier, Charcot, Brown-Séquard, and others have proved that we may always induce convulsions in an animal by irritation of almost any part of the cortex, but that we most frequently succeed in causing their appearance by irritation of some part of the motor tract. These facts agree with clinical observations. The most varied lesions have been known to give rise to convulsions, with or without coma. I need mention but two exactly opposite conditions,—great hyperæmia of the brain and intense cerebral anæmia as observed after profuse hemorrhages. We are entitled, therefore, to draw the conclusion that various, even mild chronic, lesions of the encephalon may produce by irritation that permanent excitability in the medulla oblongata which causes the epileptic attack; and if the irritation be often repeated, those permanent changes may take place in that important organ which we know are to be met with in all inveterate cases of epilepsy.

I have dwelt at such length upon this point because, in the selection of a profession or of any occupation, the question may arise whether the epileptic disease will gradually lead to imbecility. My answer is that in true epilepsy it probably never does, no matter how severe the paroxysms and how great their frequency, but that

this malady is also occasionally associated with abnormal conditions of the mind leading to imbecility.

Regarding treatment, many remedies have been recommended. You may read them in any book on nervous diseases. Concerning my own experience, I have found that the bromides, almost without exception, will lessen the frequency of the attacks, but rarely cure a case. Although a combination of the bromides of potash, sodium, lithium, and ammonium has been specially recommended by reliable authors, I cannot attribute a greater influence to them. Bromide of potash alone has given me the best result: where it failed the combination also did not succeed. I generally commence with twenty grains three times daily in some alkaline water. If this dose does not seem to influence the frequency of the paroxysms, I gradually increase it. If one drachm three times daily does not bring the desired result, I try one single dose at night; and I have to record one case where this change proved of decided benefit, while in others it has less effect than the administration of three daily doses.

Whenever the bromide fails, I have recourse to two other remedies, if the patient is willing to incur the risk attended with one of them. They are nitrate of silver and belladonna. Of the former I give first one-fourth grain three times daily, gradually increasing the dose to one grain, and to each pill I add gr. $\frac{1}{24}$ to gr. $\frac{1}{12}$ of extract of belladonna. I must admit that I have cured but two patients and improved about fourteen or fifteen with the bromide treatment, while three cases recovered under the use of the nitrate of silver and belladonna. One of them is still seized about once a year by a mild attack of petit mal,—*i.e.*, for a second his face assumes a blank expression and the attack is over. All three patients have a mild bluish tint in their skin. I have no case to record where the attacks simply lessened in frequency under this treatment, because patients either declined to become blue or did not persevere. I have tried all other remedies, electricity and water-cure included, but the result was *nil.* For curiosity's sake I will tell you of one case that recovered under my charge. In this case, a young man, æt. 26, I established a seton in the nape of the neck and kept the sore open for fourteen months. This is now about fourteen years since; the attacks never returned. For the first three or four years I made an issue in every case of epilepsy, but without obtaining in any other patient the slightest effect.

I will admit that the results of my treatment have not been very favorable, but they state the truth, and I think if every physician would conscientiously report the number of his cases and that of his failures, you might be surprised at the small number of cases of true epilepsy really cured.

We will administer bromide of potash to our three patients in suitable doses, and continue the treatment for a certain period as indicated, gradually increasing the doses if necessary. If the result is not favorable, we will propose to them the use of nitrate of silver; but, gentlemen, never omit to obtain first the patient's full consent to the procedure after you have made him fully acquainted with the discoloration of the skin to be expected, as you otherwise may make yourselves liable to a suit for damages.

507 FRANKLIN STREET.

ORIGINAL COMMUNICATIONS.

TRACHEOTOMY IN DIPHTHERITIC CROUP.

Read before the Philadelphia County Medical Society, January 21, 1885,

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IN the following paper I desire to record briefly the histories of five cases of tracheotomy performed for the relief of respiratory obstruction consequent upon diphtheria, and to make some remarks upon the operation in this affection:

Case I.—On April 15, 1882, I was called to see James D., aged 3½ years, an inmate of the Southern Home for Destitute Children, who at the time was under the care of Dr. Samuel F. Hazlehurst. The patient was convalescing from an attack of measles, when he suddenly developed marked croupous symptoms. When I saw the case, the symptoms of laryngeal obstruction being very urgent, it was decided to perform tracheotomy at once. Ether was administered, and the trachea was opened below the isthmus of the thyroid gland, and a tracheotomy tube introduced without difficulty: the child experienced immediate relief from his extreme dyspnœa, the respiratory movements

becoming quiet and natural. The day after the operation the case was doing well, but it was observed that the lymphatic glands below the jaw were much enlarged, and that an exudation had appeared upon the surface of the wound in the neighborhood of the tube. On the third day symptoms of respiratory obstruction again appeared. The tube was withdrawn, and attempts were made to remove the exudation from the trachea, without success. The tube was then replaced, but the child grew gradually worse, and died some hours later, with symptoms of increasing dyspnœa.

Case II.—On April 30 I was called to see Ella M., aged 5 years, an inmate of the same institution, under the care of Dr. Hazlehurst. The history of this child, prior to the operation, closely resembled that of the preceding case. When I saw her she presented marked symptoms of laryngeal obstruction, but, unfortunately, in this case much delay was experienced in procuring a tracheotomy tube, and when this was finally obtained the child was markedly cyanosed, very restless, and presented all the symptoms of dyspnœa in a most aggravated form.

She was put upon the table, and a small amount of ether was administered and the incision was made, but before the trachea could be exposed the respiration suddenly ceased and the pulse failed. The trachea was then hurriedly opened, and in doing this some of the thyroid veins were wounded and bled profusely: the tube was introduced, and artificial respiration was practised for some minutes, but the respiratory action could not be re-established.

In this case I think I erred in two respects: first, in not performing the operation sooner, —I should have opened the trachea, and depended upon keeping it patulous by means of retractors or sutures introduced through the edges of the trachea until I could have obtained a tracheotomy tube; and, secondly, in administering ether where the respiratory action was already so much embarrassed.

Case III.—On May 12, 1882, I was called to see Eddie M., aged 2 years, an inmate of the same institution, who was, a few days before I saw him, attacked with diphtheria, which was followed by symptoms of laryngeal obstruction. When I saw this case the respiratory obstruction was very marked, and the condition of the lungs seemed to indicate an involvement of the parts below the seat of the proposed operation.

Prof. Ashhurst, who kindly saw the case with me, thought it justifiable to open the trachea. The operation was accordingly done and a tube introduced, and the child obtained immediate relief from the urgent symptoms which he had previously presented, the respiration soon becoming quiet and natural. The child's condition for the next few days was very favorable, but at the end of a week it was noticed that fluids taken into the mouth escaped in part from the tracheotomy tube. This condition gradually improved, and on the fifteenth day after the operation the tube was permanently removed, and a week later the wound was entirely healed. A short time after this date the child began to exhibit signs of paralysis, and one morning, three weeks after the wound had entirely healed, on rising from his bed he fell suddenly backwards, and when the nurse reached his side she found him dead.

Case IV.—Mary Rischer, aged 6 years, born in Germany, was admitted to the Children's Hospital on the afternoon of June 11, 1883, with symptoms of dyspnœa, complicating an attack of diphtheria. Her condition at the time of admission was not threatening, and upon consultation with Dr. Morris Lewis, who at the time was on duty in the medical wards of the hospital, we decided to await the development of more urgent symptoms before resorting to tracheotomy, especially as the case could be under constant medical observation. During the succeeding night the symptoms of dyspnœa became so marked that I was summoned, and, as the child's condition had become very critical, with the assistance of Dr. Lewis and the resident physician, who administered a small amount of ether, I opened the trachea below the isthmus of the thyroid gland and introduced a tracheotomy tube. No trouble was experienced from hemorrhage, only one small venous trunk requiring a ligature.

After the introduction of the tube the child's color rapidly improved and the respiration soon became natural.

The improvement in this case was rapid and continuous, and the temperature had become normal by the eighth day after the operation, and the wound had granulated as far as the sides of the tube. The tube was removed at intervals and the child was allowed to breathe through the wound and mouth.

On the thirteenth day I removed the tube permanently, as the child appeared to breathe well through the natural passages. Two hours after its removal, while speaking, the child was suddenly seized with symptoms of respiratory obstruction, and, owing to the contraction which had occurred in the wound, some delay occurred in the reintroduction of the tube, and the child rapidly perished.

Case V.—Edwin W., aged 2½ years, was admitted to the Children's Hospital on the morning of June 13, suffering from laryngeal obstruction consequent upon diphtheria. This patient was sent to the hospital by Dr. William M. Welch, who had had the case under observation for a few days. The child, on admission, presented symptoms of dyspnœa in so marked a degree that it was decided to perform tracheotomy at once, as it seemed to afford the only chance of saving life.

In this case no anæsthetic was administered,

as the respiration was so much embarrassed. I exposed the trachea as rapidly as possible, although some delay was caused in displacing the numerous enlarged thyroid veins which presented themselves in the wound, and opened the windpipe below the isthmus of the thyroid gland, and introduced a tracheotomy tube. After the introduction of the tube the respiratory act ceased, and it was only by the aid of artificial respiration that it was finally re-established. A number of fragments of membrane were removed from the tube and were coughed up for some hours after the operation.

The case improved slowly after the operation, the temperature not reaching the normal until the nineteenth day.

The tube was permanently removed on the twenty-fourth day after the operation, and the patient was discharged from the hospital, with the wound entirely healed and in excellent condition, on July 28, 1883.

I have reported the preceding cases because I think it important to report all cases of tracheotomy done for the relief of respiratory obstruction consequent upon diphtheria, for until within a very recent period, in this country, the operation in this disease was looked upon with marked disfavor; but I am glad to say that it is now growing in favor with the profession.

The operation of tracheotomy, if carefully done, does not, in my judgment, complicate the case, but averts an immediate tendency to death, and offers a chance of recovery to a class of cases which, left to themselves, almost invariably terminate unfavorably.

The results of expectant treatment in these cases, where symptoms of respiratory obstruction are present, have been so unsatisfactory that the operation of tracheotomy, which in the vast majority of cases prolongs life, and is in itself seldom a cause of death, seems to be most clearly indicated.

It must also be remembered that the operation is not generally proposed until full trial has been made of the various forms of medicinal treatment which may be considered appropriate to the symptoms presented.

The statistics of this operation in diphtheritic cases are difficult to estimate, as in many of the collections of cases membranous croup and diphtheritic croup are used as synonymous terms.

Prof. Henoch, of Berlin, reports sixty-six tracheotomies for diphtheritic croup, with sixteen recoveries; a little over 24.3 per cent.

These statistics agree very closely with Prof. Cohen's observation, that one case out of four recovers when the operation is performed for diphtheritic croup. Mackenzie quotes Trousseau's statistics of four hundred and sixty-six cases of tracheotomy occurring in the Children's Hospital of Paris, in which one hundred and twenty-six recoveries took place, or about one recovery in every four cases. My own limited number of cases furnishes two recoveries out of five cases, though one perished ultimately from diphtheritic paralysis.

To form a correct diagnosis between diphtheritic croup and membranous croup is at times a very difficult matter. For instance, in Case I. the symptoms pointed to a false croup, which occasionally complicates measles, but on the day succeeding the operation the glands of the neck became greatly swollen and the tracheotomy wound was covered with a diphtheritic deposit.

The diagnosis in cases where the pharyngeal lesions precede the symptoms of dyspnœa is comparatively easy, except in the case of very young children, where a satisfactory examination of the fauces is often impossible.

I myself am a believer in the non-identity of the membranous and diphtheritic croup, but, as far as their surgical treatment is concerned, I can see that an exact diagnosis makes little difference; the same indications exist in both diseases,—namely, to relieve the dyspnœa which threatens life, and this is to be overcome by the same operative procedure.

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The shortness of the neck, the depth of the trachea, the comparatively larger extent of its surface which is covered by the isthmus of the thyroid gland, the possible presence of the thymus body, and the danger of wounding the left innominate vein in very young children, are all elements which render the operation of trache-

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In some cases where it is impossible to displace the isthmus of the thyroid gland, either from the extent of the trachea which it covers or its immobility, it may become necessary to ligature it on either side of the trachea, and expose the latter by an incision between the ligatures, which can then be accomplished without fear of dangerous hemorrhage.

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The after-treatment of cases in which tracheotomy has been performed is a matter of the greatest importance, as the successful issue of the cases depends largely upon the care and watchfulness exercised in this respect.

The first indication requiring attention is the removal or escape of false membrane from the trachea. This may be coughed up and escape from the tube, or may be removed by a camel's-hair brush or a feather, and to prevent the inspissation of these discharges a warm and moist atmosphere is generally maintained. This may be accomplished by the use of the ordinary steam-atomizer, in which lime-water may be used as the spray, or by having water boiling in open vessels in the room, or by the slaking of lime in large quantities. In the Children's Hospital of this city we have a room especially arranged for the treatment of these cases, which is fitted with steam apparatus by means of which the air of the tracheotomy room can be filled with a vapor of steam in a few minutes and maintained at an even temperature.

It is also a matter of the first importance to have the case under careful and continuous observation for some time after the operation, for at any moment the tube may become obstructed by mucus or detached membrane, requiring the removal of the inner or even the outer tube. For this reason the presence of a trained assistant or a nurse skilled in the management of these cases is almost indispensable. Of the medical treatment of these cases I will say little, as much diversity of opinion exists upon this point, and the operation itself does not necessarily conflict with any form of treatment which may have previously been instituted. For my own part, I prefer the administration of carbonate of ammonium, in small and repeated doses, for the first twenty-four hours after the operation, believing that by its use the risk of heart-clot is much diminished.

The permanent removal of the tube is a matter of the greatest importance, and sometimes, I think, causes more trouble and anxiety than its original introduction. The time at which this should be attempted varies considerably in individual cases: it has been removed permanently as early as the third or four day; in other cases it has been weeks or months or years before this could be executed, and in a few cases its permanent removal has never been successfully accomplished. Many elements may

combine to render this an easy or difficult undertaking.

The importance of dispensing with the tube in cases of tracheotomy done for temporary laryngeal obstruction as soon as the cause has been removed is generally admitted. The bronchial catarrh, the danger of its displacement when competent assistance is not present to replace it, and the injury which it may inflict upon the trachea, all point to the importance of its early removal.

The growth of granulations in, and ulceration of, the trachea produced by the end of the tube, in cases where it has been retained for some time, have caused both troublesome and dangerous complications.

A case having a direct bearing upon this subject and presenting a rather unusual complication, causing death after tracheotomy, has recently been reported at a meeting of the Société Médicale des Hôpitaux de Paris by M. D'Heilly,* who showed the specimen taken from a case in which tracheotomy had been performed for diphtheria, and in which the patient died from hemorrhage on the twelfth day after the operation. The hemorrhage in this case arose from ulceration of the trachea which had extended to the innominate artery, and was caused by the end of the tracheotomy tube. The reporter states that he could find only two similar cases, which were recorded in Guy's Hospital Reports.

As soon as the patient can breathe without the aid of the tube, it is, of course, important to get rid of it; and to ascertain this fact its external opening may be plugged, or it may be removed and a wet compress of lint laid over the wound in the neck. If under these conditions the patient breathes comfortably, showing that the air passes freely through the trachea and larynx above the wound of operation, its permanent removal may at any time be attempted. The plan, which is recommended by many authorities, of removing the tube each day for a few days before its final withdrawal, and allowing the patient to breathe without its use for an increasing period of time at each removal, is, on the whole, a very good one, and one which I have generally adopted.

That the final removal of the tube need never be entirely despaired of is shown by numerous recorded cases, where, even after it had been worn for periods varying from three or four months to several years, its use had finally been dispensed with.

The difficulty produced by the removal of a tube which has been worn for some time is to be explained by several circumstances, among which may be included the healing of the external wound as far as the presence of the tube will permit, and its adhesion to the trachea, which causes it to assume a valvular action during the inspiratory acts. The growth of excessive granulations at the margins of the tracheal wound, or from the surface of the trachea impinged upon by the lower end of the tube, are also obstacles to the permanent removal of the tube until their destruction is accomplished by appropriate treatment. Another element which I think has a very important bearing upon this subject has been pointed out by Mr. Thomas Smith,† who has shown that tracheotomy, whether performed for diphtheria or acute laryngitis, is liable to cause undue irritability and disorderly action of the muscles of the glottis so as to interrupt their usual rhythm. This, perhaps, is the effect of enforced cessation of all exercise of function in the larynx which the operation entails.

Prof. Cohen‡ says that the explanation of these phenomena seems to reside in the fact that the laryngeal muscles had lost the habit of contracting harmoniously for the needs of respiration, the patients being somewhat in the condition of those with paralysis of the vocal cords.

In explanation of those cases where the tube can be dispensed with except during sleep, Smith suggests that the influence of the will may be necessary to regulate and secure the due action of these muscles, the perfection of whose movements has been impaired, and that on this account inspiration through the larynx during sleep is impossible.

To restore to their normal involuntary character the impaired functions of the disused laryngeal muscles, he recommends exercise of these functions during sleep, the removal of the tube, the case of course being carefully watched, so that upon the development of dangerous symptoms it can be reintroduced. By this means, after repeated trials in the most obstinate cases, the parts have resumed their normal con-

* British Medical Journal, May 24, 1884, p. 1017.

† Med.-Chir. Trans., vol. xlviii. p. 227.
‡ Cohen, Croup in its Relations to Tracheotomy, p. 53.

this malady is also occasionally associated with abnormal conditions of the mind leading to imbecility.

Regarding treatment, many remedies have been recommended. You may read them in any book on nervous diseases. Concerning my own experience, I have found that the bromides, almost without exception, will lessen the frequency of the attacks, but rarely cure a case. Although a combination of the bromides of potash, sodium, lithium, and ammonium has been specially recommended by reliable authors, I cannot attribute a greater influence to them. Bromide of potash alone has given me the best result: where it failed the combination also did not succeed. I generally commence with twenty grains three times daily in some alkaline water. If this dose does not seem to influence the frequency of the paroxysms, I gradually increase it. If one drachm three times daily does not bring the desired result, I try one single dose at night; and I have to record one case where this change proved of decided benefit, while in others it has less effect than the administration of three daily doses.

Whenever the bromide fails, I have recourse to two other remedies, if the patient is willing to incur the risk attended with one of them. They are nitrate of silver and belladonna. Of the former I give first one-fourth grain three times daily, gradually increasing the dose to one grain, and to each pill I add gr. $\frac{1}{24}$ to gr. $\frac{1}{12}$ of extract of belladonna. I must admit that I have cured but two patients and improved about fourteen or fifteen with the bromide treatment, while three cases recovered under the use of the nitrate of silver and belladonna. One of them is still seized about once a year by a mild attack of petit mal,—*i.e.*, for a second his face assumes a blank expression and the attack is over. All three patients have a mild bluish tint in their skin. I have no case to record where the attacks simply lessened in frequency under this treatment, because patients either declined to become blue or did not persevere. I have tried all other remedies, electricity and water-cure included, but the result was *nil.* For curiosity's sake I will tell you of one case that recovered under my charge. In this case, a young man, æt. 26, I established a seton in the nape of the neck and kept the sore open for fourteen months. This is now about fourteen years since; the attacks never returned. For the first three or four years I made an issue in every case of epilepsy, but without obtaining in any other patient the slightest effect.

I will admit that the results of my treatment have not been very favorable, but they state the truth, and I think if every physician would conscientiously report the number of his cases and that of his failures, you might be surprised at the small number of cases of true epilepsy really cured.

We will administer bromide of potash to our three patients in suitable doses, and continue the treatment for a certain period as indicated, gradually increasing the doses if necessary. If the result is not favorable, we will propose to them the use of nitrate of silver; but, gentlemen, never omit to obtain first the patient's full consent to the procedure after you have made him fully acquainted with the discoloration of the skin to be expected, as you otherwise may make yourselves liable to a suit for damages.

507 Franklin Street.

ORIGINAL COMMUNICATIONS.

TRACHEOTOMY IN DIPHTHERITIC CROUP.

Read before the Philadelphia County Medical Society, January 21, 1885,

BY H. R. WHARTON, M.D.,

Surgeon to the Children's Hospital, Demonstrator of Clinical Surgery in the University of Pennsylvania, Assistant Surgeon to the Hospital of the University of Pennsylvania.

IN the following paper I desire to record briefly the histories of five cases of tracheotomy performed for the relief of respiratory obstruction consequent upon diphtheria, and to make some remarks upon the operation in this affection:

Case I.—On April 15, 1882, I was called to see James D., aged 3½ years, an inmate of the Southern Home for Destitute Children, who at the time was under the care of Dr. Samuel F. Hazlehurst. The patient was convalescing from an attack of measles, when he suddenly developed marked croupous symptoms. When I saw the case, the symptoms of laryngeal obstruction being very urgent, it was decided to perform tracheotomy at once. Ether was administered, and the trachea was opened below the isthmus of the thyroid gland, and a tracheotomy tube introduced without difficulty: the child experienced immediate relief from his extreme dyspnœa, the respiratory movements

becoming quiet and natural. The day after the operation the case was doing well, but it was observed that the lymphatic glands below the jaw were much enlarged, and that an exudation had appeared upon the surface of the wound in the neighborhood of the tube. On the third day symptoms of respiratory obstruction again appeared. The tube was withdrawn, and attempts were made to remove the exudation from the trachea, without success. The tube was then replaced, but the child grew gradually worse, and died some hours later, with symptoms of increasing dyspnœa.

Case II.—On April 30 I was called to see Ella M., aged 5 years, an inmate of the same institution, under the care of Dr. Hazlehurst. The history of this child, prior to the operation, closely resembled that of the preceding case. When I saw her she presented marked symptoms of laryngeal obstruction, but, unfortunately, in this case much delay was experienced in procuring a tracheotomy tube, and when this was finally obtained the child was markedly cyanosed, very restless, and presented all the symptoms of dyspnœa in a most aggravated form.

She was put upon the table, and a small amount of ether was administered and the incision was made, but before the trachea could be exposed the respiration suddenly ceased and the pulse failed. The trachea was then hurriedly opened, and in doing this some of the thyroid veins were wounded and bled profusely: the tube was introduced, and artificial respiration was practised for some minutes, but the respiratory action could not be re-established.

In this case I think I erred in two respects: first, in not performing the operation sooner, —I should have opened the trachea, and depended upon keeping it patulous by means of retractors or sutures introduced through the edges of the trachea until I could have obtained a tracheotomy tube; and, secondly, in administering ether where the respiratory action was already so much embarrassed.

Case III.—On May 12, 1882, I was called to see Eddie M., aged 2 years, an inmate of the same institution, who was, a few days before I saw him, attacked with diphtheria, which was followed by symptoms of laryngeal obstruction. When I saw this case the respiratory obstruction was very marked, and the condition of the lungs seemed to indicate an involvement of the parts below the seat of the proposed operation.

Prof. Ashhurst, who kindly saw the case with me, thought it justifiable to open the trachea. The operation was accordingly done and a tube introduced, and the child obtained immediate relief from the urgent symptoms which he had previously presented, the respiration soon becoming quiet and natural. The child's condition for the next few days was very favorable, but at the end of a week it was noticed that fluids taken into the mouth escaped in part from the tracheotomy tube. This condition gradually improved, and on the fifteenth day after the operation the tube was permanently removed, and a week later the wound was entirely healed. A short time after this date the child began to exhibit signs of paralysis, and one morning, three weeks after the wound had entirely healed, on rising from his bed he fell suddenly backwards, and when the nurse reached his side she found him dead.

Case IV.—Mary Rischer, aged 6 years, born in Germany, was admitted to the Children's Hospital on the afternoon of June 11, 1883, with symptoms of dyspnœa, complicating an attack of diphtheria. Her condition at the time of admission was not threatening, and upon consultation with Dr. Morris Lewis, who at the time was on duty in the medical wards of the hospital, we decided to await the development of more urgent symptoms before resorting to tracheotomy, especially as the case could be under constant medical observation. During the succeeding night the symptoms of dyspnœa became so marked that I was summoned, and, as the child's condition had become very critical, with the assistance of Dr. Lewis and the resident physician, who administered a small amount of ether, I opened the trachea below the isthmus of the thyroid gland and introduced a tracheotomy tube. No trouble was experienced from hemorrhage, only one small venous trunk requiring a ligature.

After the introduction of the tube the child's color rapidly improved and the respiration soon became natural.

The improvement in this case was rapid and continuous, and the temperature had become normal by the eighth day after the operation, and the wound had granulated as far as the sides of the tube. The tube was removed at intervals and the child was allowed to breathe through the wound and mouth.

On the thirteenth day I removed the tube permanently, as the child appeared to breathe well through the natural passages. Two hours after its removal, while speaking, the child was suddenly seized with symptoms of respiratory obstruction, and, owing to the contraction which had occurred in the wound, some delay occurred in the reintroduction of the tube, and the child rapidly perished.

Case V.—Edwin W., aged 2½ years, was admitted to the Children's Hospital on the morning of June 13, suffering from laryngeal obstruction consequent upon diphtheria. This patient was sent to the hospital by Dr. William M. Welch, who had had the case under observation for a few days. The child, on admission, presented symptoms of dyspnœa in so marked a degree that it was decided to perform tracheotomy at once, as it seemed to afford the only chance of saving life.

In this case no anæsthetic was administered,

as the respiration was so much embarrassed. I exposed the trachea as rapidly as possible, although some delay was caused in displacing the numerous enlarged thyroid veins which presented themselves in the wound, and opened the windpipe below the isthmus of the thyroid gland, and introduced a tracheotomy tube. After the introduction of the tube the respiratory act ceased, and it was only by the aid of artificial respiration that it was finally re-established. A number of fragments of membrane were removed from the tube and were coughed up for some hours after the operation.

The case improved slowly after the operation, the temperature not reaching the normal until the nineteenth day.

The tube was permanently removed on the twenty-fourth day after the operation, and the patient was discharged from the hospital, with the wound entirely healed and in excellent condition, on July 28, 1883.

I have reported the preceding cases because I think it important to report all cases of tracheotomy done for the relief of respiratory obstruction consequent upon diphtheria, for until within a very recent period, in this country, the operation in this disease was looked upon with marked disfavor; but I am glad to say that it is now growing in favor with the profession.

The operation of tracheotomy, if carefully done, does not, in my judgment, complicate the case, but averts an immediate tendency to death, and offers a chance of recovery to a class of cases which, left to themselves, almost invariably terminate unfavorably.

The results of expectant treatment in these cases, where symptoms of respiratory obstruction are present, have been so unsatisfactory that the operation of tracheotomy, which in the vast majority of cases prolongs life, and is in itself seldom a cause of death, seems to be most clearly indicated.

It must also be remembered that the operation is not generally proposed until full trial has been made of the various forms of medicinal treatment which may be considered appropriate to the symptoms presented.

The statistics of this operation in diphtheritic cases are difficult to estimate, as in many of the collections of cases membranous croup and diphtheritic croup are used as synonymous terms.

Prof. Henoch, of Berlin, reports sixty-six tracheotomies for diphtheritic croup, with sixteen recoveries; a little over 24.3 per cent.

These statistics agree very closely with Prof. Cohen's observation, that one case out of four recovers when the operation is performed for diphtheritic croup. Mackenzie quotes Trousseau's statistics of four hundred and sixty-six cases of tracheotomy occurring in the Children's Hospital of Paris, in which one hundred and twenty-six recoveries took place, or about one recovery in every four cases. My own limited number of cases furnishes two recoveries out of five cases, though one perished ultimately from diphtheritic paralysis.

To form a correct diagnosis between diphtheritic croup and membranous croup is at times a very difficult matter. For instance, in Case I. the symptoms pointed to a false croup, which occasionally complicates measles, but on the day succeeding the operation the glands of the neck became greatly swollen and the tracheotomy wound was covered with a diphtheritic deposit.

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The after-treatment of cases in which tracheotomy has been performed is a matter of the greatest importance, as the successful issue of the cases depends largely upon the care and watchfulness exercised in this respect.

The first indication requiring attention is the removal or escape of false membrane from the trachea. This may be coughed up and escape from the tube, or may be removed by a camel's-hair brush or a feather, and to prevent the inspissation of these discharges a warm and moist atmosphere is generally maintained. This may be accomplished by the use of the ordinary steam-atomizer, in which lime-water may be used as the spray, or by having water boiling in open vessels in the room, or by the slaking of lime in large quantities. In the Children's Hospital of this city we have a room especially arranged for the treatment of these cases, which is fitted with steam apparatus by means of which the air of the tracheotomy room can be filled with a vapor of steam in a few minutes and maintained at an even temperature.

It is also a matter of the first importance to have the case under careful and continuous observation for some time after the operation, for at any moment the tube may become obstructed by mucus or detached membrane, requiring the removal of the inner or even the outer tube. For this reason the presence of a trained assistant or a nurse skilled in the management of these cases is almost indispensable. Of the medical treatment of these cases I will say little, as much diversity of opinion exists upon this point, and the operation itself does not necessarily conflict with any form of treatment which may have previously been instituted. For my own part, I prefer the administration of carbonate of ammonium, in small and repeated doses, for the first twenty-four hours after the operation, believing that by its use the risk of heart-clot is much diminished.

The permanent removal of the tube is a matter of the greatest importance, and sometimes, I think, causes more trouble and anxiety than its original introduction. The time at which this should be attempted varies considerably in individual cases: it has been removed permanently as early as the third or four day; in other cases it has been weeks or months or years before this could be executed, and in a few cases its permanent removal has never been successfully accomplished. Many elements may

combine to render this an easy or difficult undertaking.

The importance of dispensing with the tube in cases of tracheotomy done for temporary laryngeal obstruction as soon as the cause has been removed is generally admitted. The bronchial catarrh, the danger of its displacement when competent assistance is not present to replace it, and the injury which it may inflict upon the trachea, all point to the importance of its early removal.

The growth of granulations in, and ulceration of, the trachea produced by the end of the tube, in cases where it has been retained for some time, have caused both troublesome and dangerous complications.

A case having a direct bearing upon this subject and presenting a rather unusual complication, causing death after tracheotomy, has recently been reported at a meeting of the Société Médicale des Hôpitaux de Paris by M. D'Heilly,* who showed the specimen taken from a case in which tracheotomy had been performed for diphtheria, and in which the patient died from hemorrhage on the twelfth day after the operation. The hemorrhage in this case arose from ulceration of the trachea which had extended to the innominate artery, and was caused by the end of the tracheotomy tube. The reporter states that he could find only two similar cases, which were recorded in Guy's Hospital Reports.

As soon as the patient can breathe without the aid of the tube, it is, of course, important to get rid of it; and to ascertain this fact its external opening may be plugged, or it may be removed and a wet compress of lint laid over the wound in the neck. If under these conditions the patient breathes comfortably, showing that the air passes freely through the trachea and larynx above the wound of operation, its permanent removal may at any time be attempted. The plan, which is recommended by many authorities, of removing the tube each day for a few days before its final withdrawal, and allowing the patient to breathe without its use for an increasing period of time at each removal, is, on the whole, a very good one, and one which I have generally adopted.

That the final removal of the tube need never be entirely despaired of is shown by numerous recorded cases, where, even after it had been worn for periods varying from three or four months to several years, its use had finally been dispensed with.

The difficulty produced by the removal of a tube which has been worn for some time is to be explained by several circumstances, among which may be included the healing of the external wound as far as the presence of the tube will permit, and its adhesion to the trachea, which causes it to assume a valvular action during the inspiratory acts. The growth of excessive granulations at the margins of the tracheal wound, or from the surface of the trachea impinged upon by the lower end of the tube, are also obstacles to the permanent removal of the tube until their destruction is accomplished by appropriate treatment. Another element which I think has a very important bearing upon this subject has been pointed out by Mr. Thomas Smith,† who has shown that tracheotomy, whether performed for diphtheria or acute laryngitis, is liable to cause undue irritability and disorderly action of the muscles of the glottis so as to interrupt their usual rhythm. This, perhaps, is the effect of enforced cessation of all exercise of function in the larynx which the operation entails.

Prof. Cohen‡ says that the explanation of these phenomena seems to reside in the fact that the laryngeal muscles had lost the habit of contracting harmoniously for the needs of respiration, the patients being somewhat in the condition of those with paralysis of the vocal cords.

In explanation of those cases where the tube can be dispensed with except during sleep, Smith suggests that the influence of the will may be necessary to regulate and secure the due action of these muscles, the perfection of whose movements has been impaired, and that on this account inspiration through the larynx during sleep is impossible.

To restore to their normal involuntary character the impaired functions of the disused laryngeal muscles, he recommends exercise of these functions during sleep, the removal of the tube, the case of course being carefully watched, so that upon the development of dangerous symptoms it can be reintroduced. By this means, after repeated trials in the most obstinate cases, the parts have resumed their normal con-

* British Medical Journal, May 24, 1884, p. 1017.

† Med.-Chir. Trans., vol. xlviii. p. 227.
‡ Cohen, Croup in its Relations to Tracheotomy, p. 53.

dition and the use of the tube has finally been dispensed with.

This condition I have seen to occur after the removal of tracheotomy tubes, and to cause the patient to exhibit the most alarming symptoms of dyspnœa until the tube was replaced. The unfortunate termination of Case IV. was, I think, due to this cause. Here, it will be remembered, the symptoms of dyspnœa came on suddenly two hours after the removal of the canula, upon the occurrence of some excitement, and quickly terminated in death before the tube could be replaced. In this case, after death, I introduced the tube without difficulty, and could find no cause of obstruction in the trachea.

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REPORT ON THE PROGRESS OF DERMATOLOGY.

BY ARTHUR VAN HARLINGEN, M.D.

DIABETIC ERUPTIONS ABOUT THE GENITALIA.

As a supplement to the article by Kaposi on eruptions connected with diabetes, of which I gave an abstract in my last report (*Medical Times*, August 23, 1884), the following summary of a recent article by Fournier (*La France Méd.*, Nos. 31 to 35, 1884) is of interest.

Diabetic eczema has, according to Fournier, two characteristics: persistence and tendency to relapse. When acute in women, it is restricted to the vulva and immediate neighborhood; when chronic, the mons veneris, lower portion of the abdomen, hips, and groins may be involved. The symptoms are those of ordinary eczema with excessive thickening and infiltration of the tissues. The disease is excessively stubborn; without treatment it is permanent. The general treatment is based upon removal of the cause, the glycosuria; locally, warm baths, with or without the addition of starch, alkaline lotions, and powders of oxide of zinc and starch.

In men, erythema and eczema are the commonest forms of skin-diseases produced by diabetes. *Erythematous balanitis*, characterized by redness of the glans, is the simplest, earliest, and commonest of these affections. It is usually confined to the immediate neighborhood of the meatus, which is seen framed in an oval erythema, glassy, smooth, and turgid. A second form, generally consecutive to this, is *herpetiform balanitis*, which is characterized by the appearance of numbers of pin-head-sized excoriations on a red hyperæmic base, coalescing to form round or irregularly oval outlines, but without any initial vesicle as in herpes. A third type, more common than the latter, is *eczematous balanitis*, somewhat variable in aspect, but usually of the dry, desquamating variety. The epithelium is thin, cracked, broken, and desquamating, and its gray or white tint contrasts with the red ground of the glans: here and there the surface is fissured and bleeding or crusted. Often, besides the eczema, a whitish scurf is to be met, which under the microscope is seen to be a vegetable parasite resembling a saccharomycete. The prepuce, like the glans, may be involved subsequently. The characters of diabetic posthitis are first a rose coloration of the prepuce, then œdema, and later eczema. This is characterized on the cutaneous surface of the prepuce by a desquamation of small scales upon a hyperæmic base. On the mucous surface there is vivid redness and an eroded aspect due to a certain degree of epithelial exfoliation; there is also slight serous or sero-purulent oozing; and, last, on the level of the inferior ring of the prepuce, where the symptoms are most accentuated and characteristic, the lesions of eczema rimosum are to be observed, characterized by a circle of linear chaps arranged around the preputial ring like the spokes of a wheel. These chaps or fissures, which are the result of the inelasticity of the infiltrated prepuce, are produced whenever it is drawn back over the glans.

This eczematous balano-posthitis is almost characteristic in itself, but it leads on to another condition still more striking, *diabetic paraphimosis*. This is brought about by progressive thickening and infiltration of the prepuce, which becomes hard and leathery; diminution, then loss, of elasticity of the organ; and, finally, actual atresia of the preputial orifice. Sometimes preputial lymphangitis of chronic type causes the formation of nodules which might easily be mistaken for subpreputial tumors of another nature, such as vegetations, indurated chancre, or chancroid lesions. The preventive local treatment consists in the avoidance of contact between the urine and the integumen-

tum penis. When the disease is developed, alkaline lotions are used, with dusting powders, zinc, bismuth, talc, boric acid, etc. Where there is phimosis, these may be supplemented by local baths of mallow and elder, and above all frequently-repeated preputial injections, first with pure water, and then with medicated solutions, sodic carbonate or borate; if there is suppuration, nitrate of silver. The opposed surfaces of glans and prepuce should be kept separate by pledgets of absorbent cotton. Circumcision should never be practised unless the urinary sugar has completely disappeared. Gangrenous skin-affections of the genitalia are very rare; Fournier has never seen them in the female. (*Edinburgh Medical Journal*, September, 1884.)

SYMMETRICAL GANGRENE.

Lutz and Schultz (*Schmidt's Jahrb.*, Bd. 203, p. 27) give cases of this curious affection of the skin. The first was that of a man, 44 years of age. The patient, without having experienced any premonitory or general symptoms, observed, about the end of May, 1883, certain evanescent red patches on the back of the right hand, together with separation of the epidermis at various points in small, thin, black flakes, without leaving scars. Small red papules developed later on the same hand, which, in from twenty-four to thirty-six hours, changed to bluish-red blebs. These, after rupture, left slowly-healing, excavated ulcers. Towards the end of October similar blebs and ulcers appeared upon the left hand, without disturbance of the general health.

Examined by Lutz on October 29, similar lesions, with scars of former ones, were observed. Other lesions followed in relapses on both hands until the middle of November. Careful examination of the patient, a former brewer and great beer-drinker, of corpulent habit, failed to show any abnormality of lungs, heart, blood-vessels, or kidneys. Under the use of iodide of potassium internally, with dilute mercurial ointment to the ulcers, entire recovery took place.

Lutz remarks that the affection appeared to occur in two paroxysms, of which the first was preceded by general depression. There were no prodromal pains. The vaso-motor disturbance showed itself only as redness of short duration. There were no symptoms of spasm of the vessels, disturbance of the specific sensory nerves, or motor alteration. The gangrenous patches were highly symmetrical, corresponding almost precisely in location one side with the other.

Schultz's case was that of a woman of 25, suffering with "typhus" fever, who was prematurely confined of a dead infant and suffered from excessive loss of blood with collapse. During this time, towards the last of the collapse and high fever, the patient complained of pain in both legs, with a tingling and numb sensation in the feet. The lower extremities were swollen. On the external aspect of both legs were precisely symmetrical, bluish-black, finger-nail sized, round patches of superficial slough. On the left leg there was a similar patch, also on the inner side. There were no nervous or sensory disturbances. A day or two later some smaller patches of a similar character showed themselves on the outer side of both arms, as well as forearms. There was some alteration in the sensibility of the fingers, so that a needle could not be held. Objectively, sensation was not diminished. On the left breast was a finger-nail sized, gangrenous patch, while on the right two smaller, bluish-red patches could be observed. The patches on the left breast and on the right thigh became ulcerated and separated down to the adipose tissue, as if punched out. These patches were soon covered with granulations and cicatrized. In the less severely affected patches only superficial gangrene occurred. Pus was secreted under the skin, and gradually a crust was formed and the lesion healed. The asphyxiated patches on the right breast were not followed by any loss of substance, but the skin took on its normal appearance again when the circulation was restored.

According to Schultz, this case presents differences compared to previously recorded ones. The symmetrical character of the lesions, the absence of all spastic ischæmic disturbance, and the escape of fingers and toes from disease were all peculiar. Schultz thinks the cause lay in a pure neurotic disturbance occurring in an extremely reduced system. The symmetrical character of the lesions points to a disturbance of the trophic centres of the cord. Schultz regards his case as a true "tropho-neurotic symmetrical gangrene." All similar cases of symmetrical gangrene,

when not dependent upon external, chemical or toxic, embolic, and thrombotic influences, even if preceded by angiospastic ischæmic conditions, which, as dependent upon vascular spasm, are also of nervous origin, are to be regarded as neurotic symmetrical gangrene.

RED CHROMIDROSIS.

Le Roy de Méricourt (*Deutsche Med. Zeit.*, 1884, No. 27) reports the case of a boy of 12 years in whom a rose-colored eruption was observed on the skin in the right sub-maxillary region extending to the right side of the neck. The color was so marked that the boy's white collar was stained red. With a lens red granules could be perceived on and between the superficial layers of the epidermis. The day after the first examination certain irregularly-shaped bluish areas could be perceived on the periphery of this red portion.

YELLOW CHROMIDROSIS.

Dr. James C. White (*Jour. Cut. ana Ven. Dis.*, vol. ii. No. 10, 1884) reports the case of a blonde German of 20, who had noticed for six months that the left side of his shirt was constantly stained of a yellow color, not entirely removed by washing. He sweat profusely while at work, but not more on one side than the other. The patient was well, and did not experience any abnormal sensations. On examination the shirt was found stained of a bright saffron color on the left side from the shoulder down to the end of the flap. The skin presented no abnormal color. After keeping the patient under careful observation for two weeks, Dr. White directed him to rub in an ointment of salicylic and boracic acids. The trouble disappeared within ten days, and had not returned up to four months subsequently. Examination of the coloring-matter failed to give any clue as to its nature.

LEUCODERMA OF SYPHILITIC ORIGIN.

Under the name "leucoderma syphiliticum," Neisser (*Vierteljahrsch. f. Derm. u. Syph.*, x. p. 491, 1883) describes an affection characterized by the appearance of pigmentless patches showing themselves during the cure of the macular and papular eruptions. The patches have a whiter color than the surrounding skin and tend to grow on their periphery, sometimes approaching one another so as to form a sort of mesh-work of dark trabeculæ, among which the whiter patches can be seen.

The affection is found only in syphilitic cases, usually occurring on the neck, neighborhood of the shoulder, abdomen, and extremities, rarely on the face. It occurs at the end of the first and the beginning of the second year of syphilis, and usually lasts three or four months, although in rare cases it may last for several years. There are no subjective symptoms connected with it; medicine has no effect upon it; it is very much more common among women.

Leucoderma of syphilitic origin is to be distinguished from idiopathic leucoderma (vitiligo). The patches in the latter are much whiter and the borders darker; there is a transfer rather than a loss of pigment. The seat of vitiligo is on the face, hands, and genitalia, where the syphilitic affection is not found.

HIRSUTIES.

Cases of general hirsuties are so rare that the following of Fürst's deserves mention, though published more than a year since (*Virchow's Archiv*, xcvi. p. 357, 1883). The individual, a girl 9 years of age, was the ninth child of unrelated parents. The other children were normal. The middle of the forehead is free from hair; above it is a large bunch of hair. The brows meet in the centre. Cheeks, lips, and chin are covered with hair. The dorsal region shows more hair than the abdominal. The growth of hair in the lumbar region and in the sacro-coccygeal fold is particularly thick. The hair on the extensor surface of the arms is very thick, and about two centimetres long. The flexor aspect of the arms as well as the hands is free. The hair of the lower extremities, which is one and a half centimetres in length, stops abruptly at the ankles. The feet are free. The little girl was born with long hair on the head and heavy eyebrows. Now she is so clothed as to be completely hidden in her hairy growth. Dr. Fürst thinks the growth has now reached its full limit. The alveolar portion of the upper and lower jaws is enlarged to the thickness of one's little finger. The milk-teeth show no anomalies.

PSORIASIS PASSING INTO VERRUCA AND THEN EPITHELIOMA.

Dr. James C. White (*Am. Jour. Med. Sci.*, January, 1885) gives two cases in

which this extraordinary sequence of pathological process was observed. The first was that of a gentleman, æt. 27, who presented himself in 1866, suffering from a well-marked psoriasis scattered over the general surface, of six years' standing. He remained under treatment ten years, during which time all known remedies were employed without success. The eruption, which was always intolerant of local remedies, came and went, but never wholly disappeared from certain localities, as the scalp and backs of the hands.

Ten years ago several patches in the latter parts, and lower forearms especially, began to undergo a change, their bases becoming less hyperæmic and they themselves more elevated and less scaly, until they were gradually converted into sharply-defined, prominent, firm, and horny outgrowths, some of them resembling the unpigmented formations of keratosis senilis in the same localities, while others were more like callosities or some form of warts.

Three years ago a patch on the right palm became excoriated and fissured, and in spite of treatment terminated in a small ulcer. Later a similar one formed on the left palm. Repeated cauterization and scraping seemed to heal these ulcers for the time, but repeated relapses occurred, and both palms finally became much more largely involved. The axillary glands were at no time involved. The patient's health now began to fail under the pain and anxiety, and amputation was suggested. He then, by advice of Dr. White, consulted Hutchinson and Paget in London and Kaposi and Billroth in Vienna. The opinions of these gentlemen are not given. Finally, in April, 1884, the right hand was amputated above the wrist, and the fore- and middle-fingers of the left hand were excised through the middle of the metacarpal bones. The patient recovered from the operation and regained his former health and spirits. There was no return of the disease in other parts. Microscopic examination of the parts removed showed the characteristic appearances of flat-cell, epidermoid cancer.

Dr. White's second case bears in many respects a close resemblance to the first, save that no intermediate verrucous growth could be ascertained. He quotes a third case from Ziemssen's *Handbuch* (Bd. xiv., Hautkrankheiten), in which psoriatic patches were found to eventuate in epithelioma.

The lesson to be drawn from the study of these cases is that the transformation of patches of psoriasis into verrucous hypertrophy must be regarded as an ominous occurrence, and that the softening or other change of such horny growths demands thorough excision without delay.

MEDICINAL ERUPTIONS.

Bromide Eruption.—At a recent meeting of the Clinical Society (*Lancet*, November 1, 1885, p. 778), Dr. Carrington described a case of dermatitis from bromide of potassium, the patient being an infant, 10 months of age, to whom somewhere about eight grains of the drug were given daily for seven weeks. Part of the time the bromide of ammonium was given instead of the potash salt. The date of appearance of the eruption is not known. It showed itself in the form of minute red papules, which in the course of three or four days attained the size of a penny-piece. The parts affected were the buttocks, legs, thigh, and to a smaller extent the scalp and face. The smaller patches were of a bright crimson color and smooth, the largest ones of a dark brownish hue, circular or elliptical in form, with a sharply-defined edge at least one-eighth of an inch in thickness. They were of a spongy texture, without the least trace of fluid contents. The treatment given was half a grain of potassium iodide and one minim of liquor arsenicalis three times a day. In a fortnight there was very great improvement, and rapid recovery took place.

Antipyrine Eruption.—Antipyrine, now coming into use as an antipyretic, is a synthetic alkaloid belonging to the chinoline group, and apparently bearing some relation to quinine, though not as an antiperiodic. Of this medicine, Cahn (*Berlin. Klin. Wochens.*) reports that in one case he has observed as a result of its use an eruption of round, reddish, somewhat elevated spots, without subjective symptoms and disappearing on pressure. The rash was chiefly distributed over the back and extensor surfaces: the head, the palms of the hands, and the soles of the feet were not affected. The eruption disappeared as soon as the use of the antipyrine was discontinued, but returned when it was resumed.

Generalized Erythema from a Surgical Dressing containing Corrosive Sublimate.—Reichel (*Annales de Derm. et de Syph.*, 1884, p. 553) gives the case of a man who had undergone osteotomy for genu valgum, the lower limb being subsequently dressed with corrosive-sublimate gauze. For four days all went well. On the fifth there was itching and burning in the limb, which (the dressing being continued) spread to the abdomen and chest in the form of large erythematous patches and scattered papules. The neck and face were free. The skin at the seat of the dressing was violently inflamed and weeping. There were no fever, salivation, or other general symptoms. The eruption disappeared in a few days after removing the sublimate dressing.

DERMATITIS FROM THE LOCAL ACTION OF BICHROMATE OF POTASSIUM.

B. W. Richardson (*The Asclepiad*, October, 1884) says that while the skin in its normal state, the epidermis being intact, is insensible to the action of bichromate of potassium, if it be torn or abraded, however triflingly, by the prick of a pin for example, a sharp pain is felt on the exposure; and if the salt be left in contact with the wound the caustic character of the salt is brought out intensely, the cutaneous tissue is decomposed, and violent inflammation is established. These symptoms are accompanied with intense pain, especially in winter when the cold is severe. The action of the salt does not cease until the cauterization has penetrated to the bone. Workmen in factories are apt to suffer from ulcerations about the genitalia and elsewhere, resembling syphilitic manifestations. Such are the symptoms noted by French observers. Richardson himself reports several cases in which an acute dermatitis followed the exposure to watery solutions of the bichromate of not more than five or six per cent. strength. Workmen in chemical factories and autotype artists are most apt to be affected. The nasal mucous membrane may also be ulcerated. Colored photographic illustrations accompany the paper.

TREATMENT OF SKIN-DISEASES.

Application of Remedies in Collodion.—Barnes (*Am. Jour. Pharmacy*) finds that wood-tar dissolves in collodion in the proportion of 1 to 4. An alcoholic extract of coal-tar reduced to a syrupy consistence dissolves in the same proportion. Half a drachm of iodine is taken up by an ounce of this solution. For oil of cade the proportion is 1 to 5; for gurjun oil, 1 to 3–4; balsam Peru and oleic acid, 1 to 4; glacial acetic acid and crystallized carbolic acid, 1 to 4; creasote and essential oil of mustard, 1 to 7; extract of belladonna, 1 to 8. Aconitine, atropine, and hyoscyamine dissolve easily; veratrine, by the addition of a little oleic acid, and morphine the same, as by the following formulæ: ℞ Veratrinæ, gr. vii; collodii, ʒvii; acidi oleici, ʒi, M., or ℞ Morphinæ, gr. iv ad ix; collodii flexile, ʒvii; acidi oleici, ʒi. M. White precipitate, iodide of lead, iodide of cadmium, and sulphur dissolve (?) in the proportion of 1 to 7; oleate of mercury and oleate of zinc, 1 to 4. Iodide of sulphur cannot be employed in this combination, as it becomes decomposed.

Salicylic Acid in Urticaria.—Lassar (*Monatshefte f. Prakt. Dermatologie*, July, 1884) gives the case of an otherwise healthy man who for six years had been subject to sudden and severe attacks of urticaria, accompanied by feverishness and general malaise and without ostensible cause. The eruption was severe and general, even the mucous membranes being attacked.

Salicylate of sodium, in twenty-four grain powders, was ordered, to be taken the moment the symptoms appeared, and repeated at intervals of two hours until two more doses had been taken. Under this treatment the attacks were not only cut short, but reduced in frequency, none having occurred for two months at the time of the report.

Resorcin in Impetiginous Eczema of the Scalp.—Cattani found that under the use of resorcin ointments the crusts dried rapidly and disappeared, leaving behind a red, sometimes bleeding, surface if the resulting scale was torn off. A few more applications serve to remove all trace of the eruption. Cattani's formula is,—

℞ Resorcin, gr. l ad c;
Ung. petrolii, ʒi. M.

—*Monatshefte f. Prakt. Derm.*, 1884, p. 277.

Resorcin in Ichthyosis.—Andeer (*Monatshefte f. Prakt. Dermatologie*, 1884, p. 365) recommends a three-per-cent. ointment of resorcin for use on parts slightly affected with ichthyosis, while on the more severely affected parts he uses an ointment

of five to twenty per cent. strength, covering the parts afterwards with cotton batting.

Treatment of Seborrhœa Capitis.—Jackson (*New York Med. Record*), in an article on "dandruff," suggests general treatment when necessary with oil baths to remove any crusts, followed by the daily rubbing in of an ointment containing a drachm of sulphur to the ounce of vaseline. Another formula, suggested by Bronson, is the following:

℞ Hydrarg. præcip. alb., gr. xx;
Hydrarg. chlor. mitis, gr. xl;
Vaselin., ℥i. M.

A CASE OF MULTIPLE SARCOMA OF THE PERITONEUM SECONDARY TO SARCOMA OF TESTICLE.

BY CHARLES D. BENNETT, M.D.,
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ALBERT O., aged 25 years, born in Germany, was admitted to St. Michael's Hospital February 18, 1884. Patient had been perfectly well until six months ago, when he suffered for eight or nine weeks with malarial fever (?). Since then he has never felt well, has had alternating diarrhœa and constipation, and six weeks ago noticed a small swelling in the lower and left portion of the abdomen, which rapidly increased for two weeks, and has since remained stationary. During the four weeks preceding the first observation of the tumor, a dull, aching, and continuous pain was noticed a little below and to the left of the umbilicus.

At the onset of the fever, patient's left testicle commenced swelling, with some pain and tenderness and reddening of the scrotal integument, and continued slowly increasing in size for about ten weeks, then remained stationary until admitted to the hospital in the service of Dr. J. T. Wrightson. The pain and redness in the scrotum and the dragging pain in the left groin gradually ceased shortly after his fever had ceased. He denied all venereal disease. He had been under the care successively of two physicians, both of whom informed him that the tumor was his enlarged spleen.

On admission, the patient was well nourished; not cachectic, but rather pale in the face and the mucous membranes. Examination of the abdomen revealed a large tumor in the left lumbar and inguinal regions, smooth and firm to the touch, giving the impression of a sac greatly distended with fluid. The tumor was roughly bounded by a line running along the median line from the pubes to two inches above the umbilicus, then curving downwards and outwards two inches above and a little behind the anterior superior spine of the ilium, thence running downwards along Poupart's ligament to the pubes. Throughout this area, which was perfectly well defined, there was considerable prominence, marked dulness on percussion, and some slight tenderness on manipulation. The tumor was firmly fixed, did not move with the respirations, nor could it be moved from side to side by the use of any reasonable amount of force. By two of the staff it was thought fluctuation could be felt; but this sensation would probably have been more correctly described as elasticity,—much such a feeling as is conveyed by lightly compressing a toy balloon between the hands.

Between this tumor and the spleen, which was of normal size and in its normal situation, was over two inches of the ordinary tympanitic resonance of the abdomen, and a similar tympanitic area separated the tumor from the liver. There had never been much pain in the tumor, except at night when lying quietly in bed, and then none of any severity.

The scrotum presented a large growth about the size of a man's fist, egg-shaped, smooth, firm, elastic, freely movable in the scrotal tissue, and not at all sensitive to moderate pressure. The veins of the scrotum on this (left) side were much enlarged. The left testicle could not be found; the right was apparently normal. The left spermatic cord was not involved, and no connection between the abdominal and scrotal tumors could be discovered. This mass transmitted light feebly.

Both tumors were aspirated. In the scrotum the needle passed through a very thick and tough outer shell into a cavity, and ten or fifteen minims of a thick, glutinous, straw-colored fluid were withdrawn. In the abdominal growth no cavity was found, and the needle evidently penetrated solid and hard tissue, which held it firmly, and no fluid—not even blood—could be obtained. There had never been any obstruction to the bowels, no colicky pain, and the urine had always been normal in appearance. Its specific gravity on admission was 1019, and it contained no albumen nor casts. There were no constitutional symptoms, no fever, headache, nausea, nor vomiting; no emaciation, and, except at night, no pain.

February 28. Tumor evidently increased in size. Abdomen measured at umbilicus thirty-two inches. Still very little pain.

March 5. Tumor greatly enlarged, extending considerably past the median line; was more tender and quite painful. Girth of abdomen was thirty-three and three-quarter inches. Some tympanites. Examination per rectum revealed large smooth growths, quite firm and rather sensitive, in front and to the right of the rectum. One of these, pressed firmly, seemed to burst and disappear. No constriction could be felt. Patient showed his illness, was thinner, paler, and slept poorly.

March 10. Abdomen still increasing in size. The upper edge of the tumor, hard and nodular, could be felt distinctly running from the right of the median line towards the left, nearly to the spine. Excepting a narrow strip just below the ribs, the whole left half of the abdomen was dull on percussion. Patient had failed rapidly. He was very much emaciated and very weak, and, despite the morphine, was, on account of the pain, unable to gain much sleep. There was still no fever, although the pulse remained about 100.

March 13. On the 12th there appeared around the umbilicus a circular band of dull-reddish color, fading momentarily on pressure; apparently not erythematous, and more like a simple dilatation of the capillaries from obstruction. On this day the band was less regular, and seemed to be stretching out towards the right side, while the surface of the abdomen below the umbilicus was assuming a brownish hue, much the color of an old bruise. The superficial veins of the abdomen had been visible above the umbilicus for several days. The tumor of the testicle continued growing, and was at this time more than twice as large as when first examined, and was much softer, almost doughy.

March 14. Evidently some ascitic fluid had accumulated in the abdominal cavity. Obscure fluctuation detected. Pain continued very severe. Patient became discontented, and insisted upon going home, but towards night sank rapidly and before morning died.

At the autopsy the abdomen was much distended and contained considerable serum. The peritoneum was firmly bound down to a large subjacent mass, being especially adherent over the left side. An immense mass of new growth, incorporating adjacent organs, hard and nodular at its circumference, and containing many soft masses of sarcomatous tissue, filled the whole left half of the abdomen. These softened portions were, in the centre of the growth, pressed into one large broken-down mass of a dull reddish-brown or chocolate color, and surrounded a good-sized degenerated blood-clot. The tissue adjacent to this was on the point of suppuration, and was pointing toward the umbilicus, where the induration and the discoloration had been noticed before death. Many sarcomatous masses of various sizes were scattered through the mesentery, causing adhesions so as to make one mass of all the intestines and new growth on the left side. On the diaphragmatic surface of the liver was a similar deposit, about the size of a man's fist, and numerous small ones were scattered over the under surface of the diaphragm on both sides. One mass only, about the size of a pea, was found on the right pleural surface of the diaphragm. The left testicle was very much enlarged by a similar sarcomatous growth; its anatomical identity was lost, and its centre merely a mass of soft broken-down tissue. All the growths were about the consistence of brain-tissue. The left kidney had a small cyst in the capsule, and was adherent to the main mass, but not involved by the growth. All other organs normal.

A microscopical examination was made of one of the isolated growths on the diaphragm by Dr. Edward J. Ill, who found the tumor to be made up of large round cells, with a very small amount of connective tissue. The cells were, for the most part, arranged in long clusters somewhat resembling the tufts of epithelium, while scattered here and there were single round cells, with a few one-tailed cells.

Remarks.—The special points of interest in this case appear to be, 1st, the mode of origin; 2d, the mode of secondary infection; and 3d, the location of the secondary growths.

The man's illness began with irregular fever and the other signs of a mild orchitis, which, subsiding, left a testicle somewhat enlarged and indurated, but presenting no evidence of malignant disease. If from this point the patient had recovered, the diagnosis would have been simply acute orchitis. The patient did recover, save from his enlarged testicle, and the conclusion of the argument seems to be that this malignant sarcoma originated in a chronic hypertrophy of the testicle due to orchitis. There is no need of reminding surgeons how frequently benign growths become transformed into the most malignant tumors, or how some insignificant local irritation will become the focus of a wide-spreading malignant growth.

Erichsen ("Surgery," vol. ii. p. 569), writing of cystic sarcoma of the breast,—a disease essentially similar to the one under consideration,—says, "This form usually occurs as the result of injury or as the remote consequence of some inflammatory action during lactation." Curling ("On the Testes") considers the disease to arise from pathological changes in the rete testis, inducing dilatation of the seminal tubes.

Guthrie ("Commentaries on the Surgery of War," p. 540) records the following case: "A gentleman in perfect health was struck accidentally in the right testis by two shot while out shooting partridges. The shot lodged and gave rise to some uneasiness, and, after a time, to an enlargement which could not be distinguished from medullary sarcoma. I re-

moved the testis, and the wound healed kindly. The lumbar glands had, however, taken on the disease, and he died of their great enlargement and the general mischief which ensued within the year."

And at a meeting of the Pathological Society of Philadelphia (*Med. Times*, vol. viii. p. 475) Dr. Comegys Paul presented a cystic sarcocele of testis which originated in an orchitis fourteen years previous, and had been slowly growing all that time.

These quotations make it evident that the disease in this case may have originated as above suggested,—in simple inflammatory hypertrophy. The mode of secondary infection in sarcoma has been much disputed, but the general opinion seems to be that it is through the veins, and not by the lymph-channels. This case well illustrates this theory, for here in the testicle was a perfectly distinct and encapsuled growth, with no sign of glandular infection along the cord, in the groin, or, in fact, anywhere in the body. If the abdominal growth were secondary to that in the testicle (and it would be rather bold to assert that the two were perfectly independent of each other or had separate origins), then the conclusion is inevitable that the disease must have been transmitted through the veins, or we must deny a theory long since accepted,—that malignant disease transmitted through the lymph-channels first infects the glands nearest to the source of infection.

But when we consider the location of the secondary growths a difficulty arises. These abdominal tumors were strictly, with the one exception of the small pleural growth, confined to the peritoneum. Not a gland, lymphatic or digestive, not a single organ, not a single coil of intestine, was involved in the slightest degree. All the strength of the disease seems to have been concentrated on the serous membranes. Now, if we follow the blood-current from the testis through the left spermatic vein into the left renal vein, into the vena cava, through the heart, the first stopping-place would naturally be the pulmonary capillaries; and this, in fact, is one of the most frequent spots for secondary infection after malignant disease of the external portions of the body. But the peritoneum is entirely out of line of the circulation between the testis and the heart. If we consider the disease to be transmitted by the lymphatics, we are still unable to explain its limitation to the peritoneum, for the lymphatics from the testicle pass through the lumbar glands directly to the receptaculum chyli, and this sac and the thoracic duct showed no signs of disease. But considering the peritoneum as a large dilatation of the lymph-channels, we might suppose that the sarcomatous particles had filtered through the intervening glands, and had escaped into the comparatively open space of the peritoneum, and there implanted themselves on various points of the peritoneal wall. This view would explain the isolation of the growths, which did not increase by extension, but sprang from tissue apparently perfectly healthy, and resembled small mushrooms with their slender pedicles and larger overhanging tops, and would also explain the small growth on the right pleura.

So it would seem from this case, although the exact track followed by the infecting particles cannot always be demonstrated, that malignant disease may sometimes leave the adjacent glands unscathed and invade distant parts, even those outside of the direct blood- or lymph-channels.

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A CASE OF MORBUS MACULOSUS WERLHOFII, COMPLICATED BY MENORRHAGIA.

BY HENRY M. WETHERILL, Jr., M.D.,
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UPON the 13th of July, 1884, the writer was called upon to visit Mrs. C., aged 44 years, the mother of three healthy children, and elicited the following facts. She had always considered herself a healthy woman, but never robust; never had much color. She had not the hemorrhagic diathesis, nor had there ever been a bleeder in her family, neither upon her father's nor her mother's side. When she has received trifling cuts, they did not bleed immoderately and soon healed kindly. None of her people had ever been attacked by scurvy. Neither the woman under consideration nor her mother had ever had menorrhagia or post-partum hemorrhage; their labors have been natural and their menstruations very moderate in amount, indeed sometimes scanty, but very regular. The subject of these remarks is the wife of a small farmer, and has always had to perform laborious household duties. Within the past three months she had been obliged to work harder than usual, and in consequence had

become rather anæmic and debilitated. Forty-eight hours prior to calling me in there had suddenly appeared, *without prodromal symptoms*, small petechial spots, thickly scattered over her trunk, neck, and limbs, the extremities and the head and face not being at first involved. The following day she began to lose blood freely from the mouth, that fluid oozing from the tongue, gums, and mucous membrane. As yet no epistaxis, no bleeding from any other locality. Of late her diet had been a fairly generous one, comprising both fresh and salted meat (but no excess of the latter), vegetables, and fruit.

Upon inspection, the entire mucous membrane of the mouth and the gums was found covered with crusts of partly inspissated blood, the latter oozing freely from beneath. These being removed, the mucous membrane and gums appeared absolutely healthy, and the teeth were firm. The gums were neither swollen, spongy, nor eroded, nor were there any signs of hemorrhagic inflammation present. No history of painful tumefaction of the articulations, no cases of scurvy in the neighborhood. Of a dozen people living in the same and in contiguous dwellings and under similar conditions, this woman alone was affected.

Although the case lacked many of the distinctive elements of scurvy, the patient was ordered an acid citrate of quinine and iron, the juice of three lemons daily, nourishing and easily-digested diet, and complete rest in bed. From this time to the 19th of July her condition remained unchanged, save that the bleeding from the mouth was somewhat diminished, and the petechial spots had appeared abundantly upon the face. Temperature 98°, pulse 86, fair in strength, respiration 20. Heart and lungs sound, liver and spleen normal in size, digestion fair, appetite variable, bowels regular. No constitutional symptoms.

Upon the above date suddenly appeared large, round, purplish, hemorrhagic extravasations, varying in size from that of a twenty-five-cent silver piece to that of a silver dollar. These were about fifty in number, were flat, painless on pressure, and not surrounded by a "rosy halo," and were scattered over the limbs and trunk. Upon their appearance the bleeding from the mouth ceased. As she expected to menstruate in a week, I admonished her to remain in bed, and added to the treatment Squibb's fluid extract of ergot, gtt. xxv ter in die.

The patient took the medicine irregularly, felt so well that she refused to remain in bed, and resumed her household duties. Upon July 21, four days in advance of the expected time of menstruation, she was seized with menorrhagia, which within a few hours became a free hemorrhage. She went to bed. The acid citrate of quinine and iron was stopped, and the ergot increased to gtt. xl, with tr. ferri chlor., gtt. xij every third hour. Kept her lightly covered, and elevated the foot of the bed. Later on the same day, the hemorrhage continuing, I tamponed the vagina. Occasionally she fell into syncope. Used brandy and ammonia freely. Extremities cool. Temperature in mouth 97°; pulse 120, very small; respirations 24; sighing and yawning; great thirst. This tampon checked the flow for a few hours, when the blood began to flow through it and it was replaced by one saturated in Monsel's solution of iron. This held, and gave her a chance to rally. By this time the mattresses were saturated and the blood was dropping through upon the floor. For a week following the patient had several exhausting hemorrhages from the mucous membrane of the genital tract, and also lost blood from the bowel and bladder. The urine drawn by the catheter was red with blood. From its first appearance it had none of the characteristics of menstrual blood; it was very fluid and bright red. Both this and the clean blood which flowed from the bowel were repeatedly examined microscopically. That first seen was apparently normal,—no diminution of red corpuscles, no excess; normal in their relation to the number of leucocytes,—but as the patient became exhausted the solid constituents of the blood diminished and the leucocytes were relatively increased in number. As the blood became thinned the red blood-corpuscles seemed to imbibe the serum; they swelled, and to a great extent lost their bi-concave form. From the first bleeding this blood was *non-coagulable*,—was very *poor in fibrin*.

At a time when the anæmia was most profound, fever set in and continued for six days, the temperature under the tongue ranging from 99° to 102°, with but little variation between morning and evening. This was the "fever of deprivation," so commonly seen in the surgical wards of a hospital after exhausting hemorrhage.

The temperature became normal as the patient began to make and to retain blood. There appeared several successive crops of petechiæ, and after each there appeared new ecchymotic spots, the old ones gradually fading from purplish to green and to a yellow color. The neck and face were not invaded by the latter. It is quite reasonable to infer that the hemorrhagic process involved the mucous membrane of the bowels, as preceding each loss of blood from the anus there occurred violent paroxysms of abdominal pain, with retraction of the abdominal walls. This condition was but partially relieved by the free, local, hypodermic use of morphia.

The convalescence of this case was gradual, owing to the immense drain and shock of the system; but there *was no relapse*. In about six weeks from its appearance she was able to walk. She has been kept under ob-

servation ever since, and has been quite well, the menstruations occurring regularly and being moderate in amount.

This case is instructive, as it involves the points of differential diagnosis between scurvy, hæmophilia, and morbus maculosus. The suggestion of the existence of scurvy is at once set aside upon making a critical inspection of the case. Nor is it worth while to dwell here upon the elements of difference: they are apparent. The point to elucidate is the plain difference which exists between morbus maculosus and hæmophilia. The former is an *acquired* and *transitory* hemorrhagic condition, occurring *sporadically*, and of *brief duration, obscure in etiology* and *spontaneous* in development. The latter may be defined* as "a *congenital* and *habitual hemorrhagic diathesis*, since the extremely dangerous and obstinate hemorrhages for which bleeders are noted usually begin in the very *earliest* years of life and recur habitually."

Morbus maculosus occurs much oftener among females than among males, while the reverse is true of hæmophilia.† Nor is there lacking sound reason for this. In those families whose members are bleeders comparatively few of the women succumb to hemorrhage, as, since this disease involves a condition of plethora, the females have in their menstrual periods a salutary depletion of their habitually overfilled vessels. In morbus maculosus the bleeding suddenly occurs without marked, if any, prodromal symptoms. In hæmophilia, those cases which are not distinctly fluxionary in character, the sequel or accompaniment of a plethoric state, are *traumatic* in origin. In the latter disease the ecchymoses are surrounded by a rosy halo or areola of congestion and are tender and painful to the touch, and actual blood-tumors appear. This is not true of the former.

In hæmophilia the vessels, great and small, are found to be thin-walled, in some instances quite translucent, when normally they should be much less so; and so brittle are they, owing to tenuity and to fatty degeneration of their muscular coats, that the ligature cuts them through. The blood in hæmophilia, save when the subject is in a state of profound anæmia from hemorrhage, shows a large *preponderance of red blood* corpuscles and *of fibrin*, and a poverty of leucocytes. In morbus maculosus the vessels remain in an apparently healthy state,—*i.e.*, there are neither gross nor microscopic departures from the normal. While the blood in some cases seems normal, in others it has been found (upon the authority of Legrand, Rayer, Biett, and Becquerel) that the plasticity of that fluid was very much impaired, owing to the poverty in fibrin.

Here, then, are exactly opposite conditions of the blood and the vascular system in these two diseases. Observe that in the case of this woman the blood from the very first bleeding failed to coagulate, and continued so until the attack passed off. Her blood then resumed its plasticity. Enough has been said to demonstrate that, while these two diseases and scurvy may conveniently fall into the same general division in the works of medical writers, they are distinct diseases, dependent neither upon similar conditions of the vessels nor upon the similar state or altered composition of the blood. In fact, they resemble each other in the one bare circumstance that in both conditions there is an escape of blood.

Now, as to treatment of morbus maculosus no rules can be laid down: even suggestions would probably prove futile and misleading. I cannot think that I benefited this woman, save in the moral effect of my presence and encouragement, by the drugs administered internally during the inception and activity of the attack. It was a fortunate circumstance that the blood, although very poor in fibrin, contained sufficient of that compound to be coagulated finally by the Monsel's solution in which the tampons were soaked. Every time they were changed, which was every forty-eight hours, the blood flowed in a stream. After all bleeding had ceased I have reason to believe that tr. ferri chlor., gtt. xx t. d., and quinine, gr. viij daily, with free use of brandy in milk, were of material benefit to her.

Fortunately for the public, this disease is of rare occurrence, and probably but few cases are noted in this country within a year; but I should be exceedingly glad to learn more of this singular affection, and would be obliged to any of my professional brethren for further enlightenment upon this subject.

* Ziemssen's Cyclopædia, vol. xvii. p. 13.
† Ibid., pp. 21, 22.

TRANSLATIONS.

VACCINATION DURING THE INCUBATION OF VARIOLA.—The mean duration of the incubation of variola is from eleven to twelve days. It seems to be shorter in the hemorrhagic form, then lasting but six or eight days, except that in the latter case the variations of its duration are simply *en rapport* with the gravity of the case. The beginning of the incubation is not prevented or its progress modified by the presence of the preliminary fever. Vaccination subsequently performed may prevent or modify the eruption. It is doubtful if at this period contagion may be conveyed by the atmosphere, but from the beginning of the first stage the disease may be transmitted by inoculation. This last event presents itself particularly in the event of epidemic variola. To avoid it, it is preferable to use only *animal vaccine*, and one should abstain from vaccinating from arm to arm. It is better to collect the vaccine and not use the product until fifteen days after. Not only does vaccination prevent the spreading of smallpox, but it operates at the same time in a way to modify the eruption and to reduce the disease just as well after infection by variola as during the incubation. The result is often variable. It is often almost useless when the vaccination has been made only three or four days previous to the reception of the poison of variola, and it is therefore better that one should commence it a longer period before the outbreak of the fever. When this last has made its appearance, it is necessary to have recourse to inoculation; for, no matter by what process protection is attempted, whether by scarifying or by subcutaneous injection, the progress of the disease and the gravity of the attack of the patient will be in no wise modified.—*M. Venay*, in *Revue de Médecine*, November, 1884. P.

PELLETIÉRINE AS A TÆNICIDE.—Dr. Schroeder, in the *Archiv für Experimentelle Pathologie und Pharmacologie*, December, 1884, contributes a paper on the action of this drug as an anthelmintic. He concludes that a good anthelmintic must be destructive to the parasite and not injurious to the patient using the remedy. It must not be neutralized in the stomach, but must reach the intestines in a condition to destroy the parasite. As far as the danger to the patient is concerned, it has been proved that pelletiérine is comparatively harmless, whereas the poisonous operation of this drug upon the tape-worm has been demonstrated by therapeutic experiments. It is seldom that experiments can be made on living tape-worms of the species that usually infest the human subject outside the body, but Dr. Schroeder has experimented with *Tænia serrata*, the tape-worm of a cat. The worm was taken from the bowel of the animal just after it had been killed; the worm was then placed in a solution of salt and warm water, where for some days it lived, moved about, and seemed to be in a normal condition. A solution of 1 : 1000 of pelletiérine was added, and in five minutes the movements of the worm ceased. It was then placed in another solution of warm water and salt, and in fifteen or twenty minutes its motion recommenced. It was again placed in the solution of pelletiérine, and in ten minutes it was dead.

He gives the following directions for administration of the drug. The patient is to take only a light supper the evening before using the remedy, consisting of milk, etc., afterwards a light physic. The pelletiérine mixture is to be taken in the morning before eating, and one or two hours afterwards a strong cathartic is to be administered.

In twenty-six cases treated in this manner, eight passed the parasite with its head; eight passed the parasite without its head; eight passed the parasite without its head and neck; two passed small pieces of the parasite only. P.

MONOPLEGIA DUE TO TUBERCULAR MENINGITIS OVER THE MOTOR AREA.—In the *Progrès Médical* (February 7) is an interesting report of a case under the care of Prof. Cornil, in which left brachial monoplegia was found to be due to a definite tubercular mass in the right hemisphere, situated at the junction of the middle and upper thirds of the fissure of Rolando, pressing partly upon the ascending frontal and partly upon the ascending parietal convolutions. The growth was flat, yellowish in color, and appeared to be formed of fibrin, pus, and tubercules: from it granulations were observed extending along the course of the veins. Tubercle-bacilli were found in the inflamed meninges. The lungs were in an advanced state of caseous pneumonia.

PHILADELPHIA

MEDICAL TIMES.

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EDITORIAL.

THE STATE OF THE CORTICAL MOTOR CENTRES IN EPILEPSY.

THE clinical observation that certain cortical lesions of the brain may be attended by epilepsy is not new. Since La Motte, in 1705, first trephined for epileptiform convulsions apparently due to depressed fracture of the skull, the operation has been repeatedly performed by modern surgeons. Dudley, in 1828, operated by resorting to this method in five cases of epilepsy, and was successful in three. Billings,* in an analysis of cases of trephining for epilepsy, found that out of seventy-two cases forty-two were cured, four were unchanged, sixteen died, and the remainder were improved though not entirely relieved. The statement of Hughlings Jackson that in men certain convulsive forms have their origin in the cerebral cortex, led Ferrier to make a series of experiments upon animals, from which he concluded that epilepsy is provoked by an irritation of the cortical motor centres. This subject has been more recently studied in Italy by Albertoni, who sought to determine the pathogenesis of the epileptic seizure, and by Luciani, who has formulated a theory of the origin and site of lesion of epilepsy which has been accepted by many able physiologists and has found some application in clinical medicine. Giuseppe Seppilli, in a recent paper in the *Rivista Sperimentale*, 1884,† gives an admirable summary of the evidence in favor of Luciani's views, basing his argument upon a study of the conditions requisite for the production of artificial cortical epilepsy in animals, and the methods of provoking the seizures; secondly, the analysis of the access of the attack and the causes which modify it; and, lastly, the physiological interpretation of the clinical phenomena which accompany epilepsy. We cannot attempt even an abstract of this valuable paper here, but will merely point out a few of its more salient features. In the first place, with regard to the results of experimentation upon animals, it was found not only that the disposition to cortical epilepsy (*i.e.*, epilepsy produced by direct excitation of the surface of the cerebral hemispheres) varies greatly in different species of animals, but also that it is variable in the same animal, so that it may be diminished or abolished or notably exaggerated under the action of various causes. The facility of provoking epileptic attacks, it was found, depended upon the state of functional activity, or, more properly, the excitability, of the cerebral motor centres. Some of the conditions affecting excitability were studied in detail. It was found that it was entirely absent in the newly-born; it was reduced by certain remedies, such as potassium bromide, anæsthetics, alcohol; retarded by cold, anæmia, and asphyxia; but, on the contrary, it was greatly increased by encephalitis and by certain drugs, such as absinthe, atropine, cinchonidine, and picrotoxine. Electricity was generally employed in these experiments as the means of stimulating the surface of the brain.

The epileptogenous zone, according to Luciani and Tamburini, is the whole of the motor area of Ferrier and Hitzig, including the cortical centres for the limbs,

* Quoted by Gross, "System of Surgery," Philadelphia, 1872 (vol. ii. p. 177), where the author also gives an account of a very interesting case in which the depression of the skull was over what is now recognized as the motor region of the cerebral cortex. It was found, after trephining, that an exostosis had penetrated the dura mater and had irritated the underlying convolutions.

† Translated by Joseph Workman, M.D., of Toronto, Canada, and published in the Alienist and Neurologist, January, 1885.

face, trunk, and neck, for by electrically exciting any of the single centres, epileptic accesses more or less diffused are induced (although more strongly developed in the dog in the centres for the upper jaw and the face than in the centres for the motions of the limbs). It was observed as a curious fact that when the motor zone of a dog is laid bare over one hemisphere, if the animal survive it readily becomes subject to spontaneously-developed epileptic attacks after complete cicatrization of the wound. The occurrence of convulsions upon strong irritation of the sensory area was believed to be due to the propagation of the excitement to this motor zone. The gray matter is the essential part, according to Franck and Pitrés, who found that stimulation of the underlying white substance was incapable of provoking a convulsive access; though this was not in accord with the experiments of Bubnoff, Heidenhain, and Albertoni. Seppilli explains the apparent inconsistency by the suggestion that in the latter experiments the removal of the gray matter was incomplete. It was found, moreover, that partial destructive lesions of the gray substance of the motor zone provoked in the neighboring parts, still remaining intact, an irritable state by which their excitability was so exaggerated that intense convulsions were produced by slight stimuli.

The experiments of Heidenhain—showing that after bilateral destruction of the motor zones epilepsy can no longer be provoked—go far towards explaining the diffusion of the stimulus in the development of general spasms supervening upon local irritation of one side of the brain. Indeed, Unverricht claimed that the intactness of the cortical motor region is a necessary condition for the development of a complete epileptic attack. The fact of convulsions being variable in their forms according to determining causes, does not exclude the idea that they depend chiefly on abnormal excitation of the cortex.

Convulsions of bulbar origin are claimed by Luciani to be distinct from true epilepsy because they are not attended by unconsciousness, nor do they begin in certain groups of muscles and afterwards become general, as in true epilepsy which accords with results of direct irritation of the cortical motor centres. Seppilli, however, regards the view of Luciani as a little too exclusive, and believes that epilepsy may be considered as a disease of the motor apparatus of the brain, and that it is legitimate to suppose that basilar motor centres, when they supply the function of the destroyed cortical motor centres, may acquire, as these, the epileptogenous property by exaggerating their proper function in such a manner that, in cases of absolute want of the motor zone, they may in turn become points of origin and of diffusion of an epileptic attack limited to the opposite side of the body.

A case unique in literature is reported by Seppilli, of a woman, 30 years of age, in whom epilepsy had supervened at the age of twelve years upon an attack of cerebral disease. Left bodily hemiatrophy and incomplete paralysis existed, with attacks of left-sided epilepsy, commencing in the arm, in which there was also contracture. After death the so-called motor zone was found to be entirely destroyed and replaced by vacuolated fibrous tissue, which extended into the medullary substance almost as far as the ependyma of the ventricles, and was associated with degeneration of the whole of the left pyramid. This remarkable case confirms the declaration of Luciani and Tamburini,* that the basilar ganglia may have a psycho-motor function differing only in degree from that of the cortex, but in the absence of the latter it is developed and augmented and thus favors the improvement of paralytic states.

Thus experiment and observation ap-

* Rivista Sperimentale di Freniatria. Quoted by Seppilli.

parently show that the anatomical seat of the disorder giving rise to the epileptic convulsions is represented by the motor centres of the cerebral cortex. That there exists an intimate relation between this motor zone and the epileptic attack may be considered as experimentally established, and also that the presence of an active motor zone is indispensable for the generation of the convulsive accesses, no matter in what part of the body the original source of irritation may be situated.

NOTES FROM SPECIAL CORRESPONDENTS.

LONDON.

THE most important medical matter here at the present time are the Lettsomian Lectures delivered before the Medical Society of London by Dr. Lauder Brunton, F.R.S. All looked forward with expectation and now all look back with satisfaction upon them. The lecturer is one of the most conspicuous figures in the medical world here, albeit but a comparatively young man. He was always a student, in the truest sense of the word, from his earliest years, and when he first went to the University of Edinburgh was already of studious habits, and, like a genuine Scotch youth, well versed in the Scriptures. Of grave and studious habit, he was the kindest-hearted and most sympathetic of beings. A general favorite with professors and fellow-students alike, Brunton's student career was a brilliant one. Then he entered the old Royal Infirmary of Edinburgh, where he studied the vascular system carefully, with the result that he gave nitrite of amyl with striking success in an obstinate case of angina pectoris. Brunton noted that the arterial pressure was high during the attack, and knew that Dr. B. W. Richardson had found the nitrite of amyl to dilate the terminal blood-vessels and so to lower the blood-pressure. He put two and two together in practice, and thus took the initial step in that promising field of therapeutics, the means of lowering arterial tension. He also gained a gold medal for his thesis on digitalis. Like many more Edinburgh men, he found his way to London, and before long got his foot down among the staff of St. Bartholomew's Hospital, where he is now assistant physician and lecturer on materia medica and therapeutics. His scientific work has been immense. Some of the most important of his work is the section "Digestion and Secretion" in Burdon-Sanderson's "Hand-Book for the Physiological Laboratory." Then he helped Sir Joseph Fayrer in his investigations as to snake-poison. He is the editor of *The Practitioner*, and the author of "Bible and Science" and "Tables of Materia Medica," while he has written many excellent articles on albuminuria, diabetes, and allied subjects. Besides all this, Dr. Brunton is a well of information on many subjects unconnected with medicine, and often quite astonishes even those who know him well by his lore on some out-of-the-way topic. Further, he is the man of all others to whom every one applies for advice, counsel, or information when in a scientific strait: the kindest and wisest of counsellors, he is deservedly popular. He still retains a great deal of the quick manner of his early days, with a fund of humor, and good humor, underlying it. When Brunton has anything to say, the medical world listens attentively. When it was announced that he was to deliver the Lettsomian Lectures this year on "The Disorders of the Digestion," all knew that they would add to their knowledge on the subject by attending. All who set up for special knowledge about the digestion and its disorders pricked up their ears,—the writer, it is needless to say, among them. The lecturer led off by pointing out the effects of cooking the food and the advantages man derives from being a "cooking animal," preparing his food for the digestive process. (It is a curious thing that raw meat, so much advocated by some doctors, has no advocate among those who study the digestion.) Man could not be turned inside out like some of the lowliest forms of life, but the intestinal canal is still but a modification of the general tegument, and so long as food is in the intestinal canal it is not actually in the body. To pass through this intestinal skin the food must be rendered soluble: that is an essential step. Disintegration precedes solution, and so food must be masticated to prepare it for the action of the gastric juice. He then spoke of diffusibility, and brought out an interesting point. Some bodies have a very high molecular weight, as hæmoglobin, where each molecule consists of over one hundred atoms of carbon to start with. Such bodies pass with difficulty through an animal membrane, while substances of small molecular weight readily diffuse. Hydration or solution involved the conversion of the food into substances with smaller molecules. "Between the large molecules forming the myosine and starch of the beefsteak and bread, and the small one of peptone and maltose into which they are transformed during digestion, there are a number of intermediate products." This is new light from a fresh quarter. We begin to see a little more clearly how it is that dextrin and maltose may feed some persons when other food of allied chemical composition fails. In some cases of enfeebled digestion some malt-extract may be the only food which can be assimilated; and in one case where I prescribed a teaspoonful of malt-extract each

hour, the patient made a brilliant recovery from a very hopeless-looking condition. Such talk as Dr. Brunton's is good and helpful for all of us, helping us to see our way out of a practical difficulty. Maltose is very palatable, which (to my mind), is more than can be said for peptones, and there are conditions of asthenia and acute disease where a combination of the two may be strongly indicated. "True peptones diffuse very easily through animal membranes, and in this respect they differ very greatly from other forms of albumen." Peptones may not be palatable, but they may have their utility all the same. Then he pointed out how soup comes to be the first item of our dinner. Schiff found by experimentation on animals that the introduction of a "peptogen" into the stomach of an animal enormously increased its power to digest albuminoids. The most powerful of these substances Schiff also found to be "dextrin and soup made from meat." Now for the practical application of this. Every sufferer from actual gastric indigestion ought, according to theory, to take a small cupful of meat-broth into which has been stirred some biscuit-powder or malted food ten or fifteen minutes before taking a meal at all heavy. (I am certainly going to give the plan a practical trial.) "Next to the soup usually comes fish, which is digested more easily than butcher's meat. I have already mentioned, more than once, that the rapidity with which anything dissolves depends very much on the fineness with which it is divided. Now, this is quite true of the different kinds of meat. Beef is acknowledged to be less digestible than mutton, and mutton less digestible than fish. The breast of a chicken is also reckoned to be very digestible. The muscle-fibres in fish are arranged in flaky masses, and not only are very short, but are readily separated from each other." Soup, fish, and the breast of a chicken are a typical dinner for the ordinary dyspeptic who cannot eat anything. A milk-pudding, especially if prepared with broken captain's biscuit instead of raw, uncooked starch, might fitly follow. And then Tom Carlyle, confirmed dyspeptic as he was, might have been amiable; but it is to be feared that he did not "regulate" his diet. Now, what did Dr. Brunton find from a city dinner? "This dinner was a revelation to me: it not only showed me that cooking might rank as one of the fine arts, but taught me that it might be a powerful moral agent. I went to the dinner exhausted with overwork, irritable in temper, and believing that city companies were wasteful bodies, who squandered money that might be employed for useful purposes, and that they should be abolished; I came away feeling strong and well, with an angelic temper, and firmly convinced that city companies had been established for the express purpose of giving dinners, and ought on no account to be interfered with. Nor was the good thus effected of a transitory nature: the irritability of temper, which had disappeared in the course of dinner, did not return; and the morning afterwards, instead of waking with headache and depression, I awoke strong and well and ready for work, and remained so for a considerable length of time." (This proves amply—if any proof were needed—that it was not the wine which alone was in action, but something more lasting.) He explains, however, that a succession of such dinners might prove them to have ulterior drawbacks. "But if the food have been excessive in quantity—for what is moderation for a man with strong digestion is excess for a man of weak digestion—or injurious in quality, and more especially if alcoholic stimulants have been taken in excess, the stomach will suffer, and next day the symptoms of gastric indigestion will probably appear. The most marked of these are loaded tongue, loss of appetite, tendency to nausea, and perhaps even vomiting."

So much for the first lecture. In the second he dealt with indigestion and biliousness. Of the latter he said, "The condition which we term biliousness is, in all probability, of complex origin. Its name points to the liver as its source, while its close connection with disturbances of the stomach might lead us to ascribe a gastric origin to it. The difficulty we have in ascertaining the exact causation of biliousness is no doubt largely due to the fact that disturbance of the liver affects the stomach and intestines, and disturbance of the stomach and intestines affects the liver. Indigestion and biliousness are, therefore, so closely associated in many cases that we can hardly say where the mischief begins, unless we can trace it from its commencement, although in other cases we get a clue to the primary origin of the disease by noticing whether the disturbance of function is greater in the stomach or the liver." There is a great deal of truth in this, and to discover which does come first is a great matter in giving direction to our line of treatment. According to the state of dilatation or contraction of the hepatic capillaries is the flow of blood in the portal vein. If this be checked, then there is venous congestion of the portal radicles. (When one reflects on this, one can see, with the mind's eye, how a blue pill at night and a dose of sulphate of soda next morning may unload the liver and expedite the flow of blood in the portal vein.) Such venous congestion in the portal radicles is often productive of much flatulence, which is common in indigestion (as it is in cardiac disease and emphysema where there is venous engorgement, especially in the valveless portal vein), and probably the effect of carminatives is local, producing astringement of the venules of the mucous membrane of the bowels. As to the relation of flatulence to heart-disease, he says, "My friend Dr. Mitchell Bruce has

called my attention to the frequency with which such patients complain of 'heart-wind.'" If flatulence be linked with venous congestion of the intestinal mucous membrane, it is but likely that heart-sufferers should be flatulent. Then he explained the expression, "He swallowed his grief." Depressing emotions cause a feeling of constriction (*Beklemmung*) by irritating the vagus, and swallowing abolishes for the time being this action of the vagus. Indigestion is often accompanied by flatulence, and also acidity. Sometimes the two alternate, as in Ewald's patient who said that "sometimes he had within him a vinegar-manufactory and at other times a gas-works." The feeling of acidity is not always actually excessive acidity, but the acid contents of the stomach irritate the cardiac end of the œsophagus. Fatty acids certainly do, and so produce cardialgia (heart-burn). At times the contents of the intestinal canal are too acid, as seen in the posseting of milk, the flatulency and acid mucus so often found together in babies. When the stomach is distended with gas, the sensitive cardiac end of the gullet is drawn open, and so the acid contents of the stomach come in contact with it. The association of piles with hepatic disturbance and congestion of the portal vein was then pointed out. Of course this suggests the relief of piles by acting upon the liver. Then he showed how temporary glycosuria and albuminuria may be the resultant accompaniment of disturbances in the digestive viscera. He said something on the topic which made some of his audience "sit up." It was this: "If we were to assume that because albumen is present in the urine the individual is suffering from serious disease, we should fall into as grave an error as if we were to suppose that every patient whose urine contained sugar was necessarily suffering from diabetes." He then reverted to the matter of larger or smaller molecules. "In the process of digestion large albuminous molecules are split up into smaller ones, which become absorbed and then undergo reconstruction, being built up in the portal blood, in the liver, and in the tissues, into larger molecules. The albuminous substances of the blood appear to consist of such large molecules that they will not diffuse through the glomeruli of a healthy kidney, but the products of digestion—peptones and hemi-albumose—will diffuse through the glomeruli and pass into the urine, producing peptonuria or hemi-albumosuria." When this last is taking place the patient is pallid and his tissues are badly nourished, because what ought to feed him is slipping away in his urine. And I guess (from experience) it is not by any means easy always to tell whether such is the case or the patient really has got Bright's disease. The man who can "knock this off" right away can go up one, or even take his place alongside Da Costa or Austin Flint. He then spoke of some maladies linked with indigestion, and pointed out the relations of asthma to digestion. Then came "stomach cough," where the fauces or pharynx become congested. He knew one case where a paroxysm of coughing was synchronous with an attack of gastric acidity. He next spoke of another case: "A gentleman suffered from cough which gave him a great deal of trouble: the back of his pharynx was congested, and I ordered him a gargle. He used this for some time without benefit, and then, for some reason or another, somebody gave him several blue pills, and the cough disappeared." Disturbances of the action of the heart from digestive troubles, and especially when accompanied by flatulence, are very common. He thought it possible that at times the heart-centres, like the other nervous centres, may be affected by some mal-product of assimilation acting as a toxic agent. He pointed out that sometimes a hale, gouty old gentleman eats an unusually hearty supper, goes to bed feeling quite well, yet is found dead in his bed next morning. At the autopsy nothing is found to account for death. The kidneys are contracted, and so may not be equal to casting out efficiently substances formed in the intestinal canal and absorbed into the blood which act as a cardiac poison. This seems probable enough, and also that such mal-products are at times the cause of the languor and depression found with indigestion. Long ago Dr. Brunton suspected that such a poison might exist and have an action like curari ("Indigestion as a Cause of Nervous Depression," 1880). More recently a substance had been extracted from human urine with such action, and also another, produced in the digestion of fibrin in gastric juice, to which its discoverer had given the name of "peptoxin." Then he proceeded to put the liver in its true place in the human economy, giving it a very high one. When the liver is working abnormally, then all is saturated with gloom; and if a man wishes to live on comfortable terms with himself, an efficient liver is as important as a clean conscience. That toxic "liver stuffs" produce depression and headaches and giddiness (gastric vertigo) there is no doubt.

In his last lecture Dr. Brunton spoke of the treatment of disorders of the digestive organs, which was also of high interest. There was one matter on which, however, I venture to hold an opinion differing from his. He spoke of Austin Flint's recent remarks about the unnecessary attention to "the regulation of their diet" by dyspeptics, pointing out that many dyspeptics are practically half starved because they are so afraid of taking food that they often go without any. This is quite true: so also is the statement that many become unnecessarily timid, and are afraid of food which will do them no harm. But from some familiarity with the subject I have found that to be able to give a dyspeptic a variety of suita-

ble food means a long, hard, persevering study of foods, from "baby foods" upwards, and probably can only be undertaken by a person endowed with unusual digestive powers. The dyspeptic needs variety just as much as other persons, but the variety lies within comparatively narrow limits, and a sufficient acquaintance with the dietary suitable for a dyspeptic has cost me as much trouble as anything I have ever encountered in medicine. It involves personal trial of all the varieties of natural foods and prepared foods, and knowledge of the best way to serve them. But it is ungracious to pick a hole in such admirable lectures and to set myself in antagonism to two such eminent authorities. The lectures will soon appear in the form of a book, which is certain to command a large sale on your side of the water; for his digestive organs are undoubtedly the weak point in the modern American.

J. MILNER FOTHERGILL.

CHICAGO.

OUR county asylum has been the scene of another disgraceful encounter. Dr. J. C. Kiernan, Superintendent, was the victim. The engineer, a burly brute, became intoxicated, and when called to account by the Superintendent he at once proceeded to knock that official down and kick him about the head and body, inflicting such injuries as confined Dr. Kiernan to bed for a number of days. It is almost inconceivable, but the same thing was repeated shortly after Dr. K. had recovered from the first assault, in this last instance an attendant being the assailant. The Superintendent carried both cases into a justice's court, as no satisfactory redress could be secured through the fellows composing the Board of Commissioners.

The shocking condition of the affairs in this institution has been frequently referred to in my correspondence, with the hope that it might aid a little in calling the more general attention of the profession to the wretched administration of our State and county institutions, and that some concert of action might be taken by which this utter perversion of all that is good in public charity might be corrected. The medical staff of our county hospital has been reorganized. The Board of County Commissioners have changed the number of medical men upon the staff from fifteen to twenty: this was found necessary to provide patronage for the Commissioners, each of the latter desiring to have his man appointed. It is satisfactory to know that, notwithstanding the methods and character of the appointing power, a large number of the appointees are worthy men.

The profession have been laboring for the establishment of a medical library in connection with our public library, and had so far succeeded that the collection began to attract some attention. The number of books, though not large, had reached proportions quite encouraging to the gentlemen having the matter in hand, when the discovery was made that some unwelcome patron was drawing the books from one end of the shelf more rapidly than the medical library committee could furnish a supply at the other end; in fact, the books were being systematically stolen, and it remained only a question of a few days till the thief had made the transfer complete. It was soon discovered that a Mr. Funk, a student in one of our leading medical schools, was the person trying to acquire illegal possession of the medical library. Funk had secured some employment in the public library, and used the position to cover his thieving. The books, to the number of several hundred, were removed to a barn in a distant part of the city, where they were carefully stacked away by the industrious student. The stolen books were nearly all recovered, and our medical library goes on again. Of course the arrest and exposure of Funk caused a sensation among all connected with the public library, as he had not entirely confined his operations to medical works. The affair created a good deal of gossip among the medical students.

The forty-second annual commencement exercises of Rush Medical College were held in Central Music Hall on the afternoon of the 17th instant. The matriculants numbered fonr hundred and one; the graduating class had one hundred and fifty-one members. At the present time the school appears to be the most prosperous in the Northwest. On the evening of the same day the faculty of Rush tendered the usual complimentary banquet at the Palmer House, and it proved, as usual, a most enjoyable affair.

The long-continued severity of the weather has caused a wide prevalence of lung- and throat-diseases.

Several attempts have been made to organize a Neurological Society in this city, but so far without any success. Its date of establishment is still a matter of great indefiniteness.

M.

FEBRUARY 19, 1885.

TRAUMATIC TETANUS WITH RECOVERY.—A Hindu, about 30 years of age, was admitted into the Hooghly Hospital with a lacerated wound of the foot. Two weeks later, after sloughing and extensive suppuration occurred, he complained of soreness and stiffness of his jaws; the next day he had tetanic convulsions with opisthotonus. He was treated with chloral, potassium bromide, tincture of cannabis Indica, and quinine in large doses. Under the treatment he slowly improved, and finally recovered, convalescence being delayed by an abscess above the ankle-joint.—*Indian Medical Gazette*, January, 1885.

PROCEEDINGS OF SOCIETIES.

PHILADELPHIA COUNTY MEDICAL SOCIETY.

A STATED meeting was held at the Hall of the College of Physicians, January 21, Dr. R. J. Levis, President of the Society, in the chair.

DISCUSSION ON TRACHEOTOMY.

Dr. John M. Keating: "I have been much interested in the reading of the paper, and wish to say a few words in reference to the medical treatment of diphtheria with deposit of membrane in the fauces. A short time ago I had the opportunity of visiting the wards of Dr. Lewis Smith, of New York, and hearing of the use of a new substance, trypsin, which was used for the purpose of dissolving membrane. Trypsin is the active ingredient of the pancreatic secretion, and is analogous to the pepsin of the gastric juice. The advantage of trypsin over pepsin lies in the fact that, while pepsin will act only in an acid solution, trypsin acts in an alkaline or neutral solution. Dr. Smith, in a paper, recommended the use of this agent at the late meeting of the New York State Medical Association, and noted several cases in which it had acted beneficially, both in those that did not require tracheotomy and also after tracheotomy where there was membrane below the opening in the tracheotomy. I have here some of the solution which has been sent me, and offer it to any member of the Society who will try it on cases of diphtheria and report the results to this Society. The solution which has been sent to me contains four grains of trypsin to the drachm, and can be used in this strength. A small quantity of bicarbonate of sodium should be added. The application may be made either directly to the throat with brush or mop, or by means of the atomizer. This is said to dissolve membrane very readily. An interesting feature to mention is, Dr. A. A. Randolph tells me, that it dissolves dead epithelium, so that when placed on the hand it soon causes a sore.

"Recently, in New York, a small quantity of the solution which I have presented to-night was used with the atomizer in a case of tracheotomy where the membrane below the opening was tough and could not be removed. The spray was introduced directly into the trachea, and it soon loosened the attachments of the membrane so that it was expectorated and drawn through the tube."

The President: "Has the solution any other physiological effect than the dissolving of membrane?"

Dr. Keating: "I cannot say, so little is known about the preparation, except that it dissolves the epithelium of the skin. I have been told that those who stripped the pancreas in the manufacture of the extractum pancreatis suffered from sore hands, which have been traced to the action of the pancreatic juices and necessitated the wearing of gum gloves. Warmth is required to make the solution very active. This dissolves the membrane, loosens its attachments, and allows of its removal, and then the ordinary local applications can be used to prevent the re-formation of the deposit."

Dr. Addinell Hewson: "On a previous occasion I have given my views to the Society. I believe that the use of aluminium silicate, applied with the atomizer and also externally, exerts a decided influence on the tenacity of the membrane."

Dr. De Forest Willard: "I have for some time been much interested in the possibility of doing away with the tube in tracheotomy. I see from Dr. Wharton's paper that he has been unable to do without it, and such has been my experience, although in most of my cases I have removed a circular piece from the trachea. Nearly always a fold of skin or of connective tissue will fall into the opening, interfere with breathing, and necessitate the introduction of the tube. I do not think that stitching the trachea to the sides of the wound will permanently cause the opening to remain patulous, nor have I found it safe to trust the case without some mechanical appliance. Tracheal hooks seemed to me to be as likely to produce ulceration as is the tube, and they are liable to displacement.

"In regard to the danger of stenosis after removal of a piece of the trachea, I have never seen any trouble of this kind. To illustrate this fact I have brought here a child on whom I operated, removing quite a large piece of the trachea, five years ago. I should like the members to examine him to see if they can detect any evidences of stenosis. He is said not to have had even a cold since the operation. There is certainly no contraction, but, owing to the absence of the rings, pressure over the cicatrix causes a little difficulty in respiration, and a slight cough. The tube was kept in thirteen days. The operation was done for diphtheritic obstruction, the boy being then four years of age.

"The tube used should be thin, in order to give as much breathing-space as possible.

"The success of the operation depends very largely on the after-treatment, and sometimes operators are deterred from performing tracheotomy by the knowledge that the patient cannot have skilled attendants; yet in this case, and in several others where the parents have been intelligent, I have been able to dispense with professional aid.

"An important element in the after-treatment is, I think, the use of a continuous spray of steam or slaking lime; with this should be enjoined high temperature. At the time I operated, on the case presented, the

temperature ranged from 80° to 95°, night and day (it was in June), and was nearly always above 85°. In all my cases I keep the temperature of the room above 80°.

"In regard to the use of ether: while it does certainly embarrass respiration to a certain extent, yet the experience which I have had of seeing a child die under the knife from the excessive struggles without ether has been sufficient to deter me from attempting the operation without an anæsthetic unless the case was already insensible to pain. Cocaine, in my experience, does not greatly diminish pain in wounds.

"I think that, as a rule, we wait too long before resorting to tracheotomy, and as long as we postpone the operation to so late a period we shall not increase our successes. At present the death-rate after diphtheria is from seventy-five to eighty per cent. The operation is often put off until the case is almost hopeless. On the other hand, I feel bound to say that in several cases, where in consultation I have opposed the desire of the attending physician and have advised against the operation until mercury had been fully tried, recovery has occurred without tracheotomy. For years I have placed my sole medical reliance in laryngeal diphtheria upon this drug."

Dr. M. O'Hara: "I recall a case of nasal croup with apparent occlusion of the larynx in which an eminent expert told me that he had waited too long. The operation was not performed, yet the child recovered under the application of ice to the throat. The child presented all the book-indications for tracheotomy, but it recovered without the operation, and the apparent occlusion of the larynx was probably attributable to the effect of the poisoned blood on the respiratory centres. There are a number of such cases that get well without operation. I do not know that we leave these cases too long, but when the operation is performed I think that ether cannot be dispensed with."

Dr. Montgomery: "I have seen considerable of the necessity for this operation, and have performed it some thirteen times, five of which were in cases of undoubted diphtheria. I had performed the operation ten times, with ten unsuccessful cases. The eleventh case was one of diphtheria, in which the diphtheritic symptoms appeared three days before the onset of the laryngeal symptoms. This case recovered. In it the tube could not be permanently removed for three weeks after the operation, although the membrane had completely disappeared. As soon as the tube was removed and the opening closed, severe laryngeal spasm set in and required the reintroduction of the tube.

"I think that in the majority of instances the operation is postponed too long. In some of my cases on which autopsies had been performed it was found that portions of the lung had become completely emptied of air and collapsed. Under such circumstances the serous effusion which takes place in the process of resolution will cause suffocation.

"I agree with the views already expressed that the tube should be as large as possible, and prefer silver to rubber on account of the larger calibre of the tube. The fenestra is useless, and is apt to irritate the edges of the wound and increase the risk of the formation of granulations in the upper part of the trachea.

"After the trachea has become cleared of membrane, a smaller tube may be introduced and breathing may take place through the throat and around the tube.

"I have suggested a plan to lessen the hemorrhage which attends the operation. It consists in lifting up a fold of the skin, transfixing it with a knife, and cutting outwards. The knife is then laid aside and the tissues separated by tearing until the trachea is reached. There is scarcely any hemorrhage when the operation is performed in this way, and I have come to look upon the operation as much less serious than it is usually considered to be.

"In my cases I have invariably used chloroform. This is not considered so dangerous in children as in adults, and it seems to allay the spasm better than other anæsthetics. I have never seen how it was possible to dispense with the tube, for there is a great tendency to collapse of the tissues and the formation of granulations.

"I believe that in the treatment of diphtheria I have obtained marked benefit from the use of corrosive sublimate, giving from $\frac{1}{25}$ to $\frac{1}{12}$ of a grain every two hours, either with or without the tincture of the chloride of iron. This has been given to children of three or four years of age, and continued for two or three days without poisonous effects, and with a rapid decrease in the formation of membrane. I have used lactic acid for dissolving the membrane, and have been more successful with this than with any other preparation used for the same purpose. I have never obtained much apparent benefit from the slaking of lime in the room."

Dr. Jurist: "Dr. J. Solis Cohen, in a set of statistics compiled some twelve years ago and including three or four thousand cases, had found the mortality to be three-fourths of the cases operated on. Dr. Willard's statement showed that there had not been any lessening of the mortality-rate since then.

"I am much interested in the refusal of the laryngeal muscles to act in some of these cases after the removal of the tube, and have never seen an adequate explanation of it. I cannot understand why these muscles, having been subjected to inaction for only three or four weeks, should be thrown into spasm when required to return to action. Three or four weeks ago I performed tracheotomy for

supposed croup. A small quantity of chloroform was administered, and there was no hemorrhage or other complication, but when the trachea was reached the patient suddenly ceased breathing. The trachea was rapidly opened and artificial respiration practised. Breathing again took place, but ceased in ten minutes, and the child died.

"As regards stenosis after tracheotomy: I recall the report of a case of tracheotomy in which the operation was performed for a foreign body, in which the patient ever after complained of shortness of breath on going up- and down-stairs. There were no other symptoms. In this case no portion of the tracheal rings had been removed.

"I think that probably the advantages obtained by the use of chloroform and the relief from spasm are counterbalanced by the ill effects on the respiration and circulation."

Dr. S. Solis Cohen: "In reference to the inability to dispense with the tube in cases in which no organic obstruction exists in the air-passages, and in illustration of the purely nervous character of the dyspnœa, I may mention a case cited in the monograph of Dr. J. Solis Cohen so frequently referred to this evening, of a child who breathed without difficulty when the tube was suspended from a cord about his neck, although not inserted into the trachea, but who was seized with spasms of dyspnœa when any attempt was made to take the tube away from him; and another case of a child who breathed perfectly well when the tube was plugged, but almost suffocated when it was withdrawn from the trachea. These facts, in connection with another to be mentioned, would tend to show the incorrectness of Mr. Erichsen's theory as quoted by Dr. Wharton,—namely, that the laryngeal muscles need to be brought again within control of the will. I think it far more probable that the difficulty is caused by the interference of the will in what is normally a purely involuntary act. The will causes the muscles of the glottis to contract as in phonation, and if the patient did not make efforts to breathe he would have no trouble. It is known that in cases of bilateral paralysis of the abductor muscles (the glottis-openers) efforts at inspiration cause the mucous membrane of the vocal bands to be drawn downwards and inwards, increasing the obstruction. The efforts of the patient to gain breath diminish his breathing-space. When you take the tube away from the child he thinks he can't breathe, he becomes frightened, spasm results, and his voluntary efforts as a matter of course disorder what should be an involuntary function.

"Another point referred to by Dr. Wharton is as to the time at which tracheotomy should be performed. In all cases of laryngeal obstruction, whether from croup, diphtheria, or other cause, tracheotomy should be performed as soon as the auxiliary muscles of respiration are brought into action, whether or not there be much recession of the soft parts above and below the sternum. The patient will not then be exhausted by his struggles for air before relief is afforded, and will have a better chance to recover."

Dr. E. T. Bruen: "The remarks of Dr. Montgomery on the use of bichloride of mercury suggest to me to relate my experience with calomel in the treatment of diphtheria, especially when the larynx is involved. Up to a very recent time I have been an advocate of what might be called the popular treatment of diphtheria,—viz., tincture of the chloride of iron, potassium chlorate, quinine, and stimulants. I was induced to try the calomel treatment, giving it in one-fourth-grain doses every two hours to children as young as eighteen months, and continuing this from two to four days. In no case was salivation induced. This, with suitable local treatment, has been a very satisfactory mode of treatment. I am a firm believer in the local treatment in all cases in which the applications can be made, but in some the local treatment cannot be employed, and it is more particularly in these cases that the best results of the calomel-treatment were obtained. At the same time, I think that much caution must be exercised in claiming very positive results from any remedy in this peculiar disease."

Dr. Blackwood: "One point in Dr. Willard's remarks has attracted my attention, and that is in reference to tracheotomy without a tube. Three or four years after the war, while located in Northern Alabama, I saw a case which illustrated the facility with which cases would sometimes recover even under the most adverse circumstances. I was asked by a local physician to see a case of diphtheria in the last stages of the disease, suffering with laryngeal obstruction. I advised tracheotomy, which, after some objection, was consented to. No tube could be found, and therefore, after opening the trachea, a couple of small fish-hooks were inserted into the edges of the trachea and secured to a piece of elastic tape passing back of the neck. I saw the case twenty-four hours later, and learned that the wound had been kept open about half the time. A tube was procured a couple of days later and inserted without difficulty. The tube, however, was broken accidentally, and afterwards reliance was placed entirely on traction with a piece of bent watch-spring. The child went through a rather sharp attack of pneumonia, but ultimately recovered. I have seen many cases of membranous croup during the past four or five years, and in several instances children have recovered after the operation has been refused by the parents.

"Another point is in reference to constitutional treatment. I am inclined to think that jaborandi is of value. I also employ cal-

omel and soda. Jaborandi relieves the dyspnœa, promotes free secretion, and tends to loosen the membrane. I have never used local treatment, as it is of little service: local applications rarely reach the trachea unless placed directly in that tube."

Dr. J. M. Keating: "I have not heard any mention of the symptoms referable to the heart as influencing the mortality-rate. These are frequently present in cases requiring tracheotomy, but are masked by the respiratory symptoms, especially where the indications for tracheotomy are pronounced, evidenced by the action of the auxiliary muscles of respiration, by the retraction of the abdomen and of the supra-renal space, and by the hoarseness of voice. Several cases which seemed as though they ought to recover have died, and post-mortem examination has shown the presence of heart-clot which had evidently existed for some time. This is an important fact to be borne in mind in reference to the mortality, and where the operation is indicated it shows the importance of its early performance.

"This also has a bearing on those cases that die suddenly during anæsthesia and in which death is attributed to the chloroform or ether. Some years ago Dr. Wharton and myself had an illustration of this. We set the hour for performing tracheotomy in a case in which it was plainly indicated, but the child died before we arrived at the house. If death had occurred during anæsthesia, it probably would have been attributed to the anæsthetic.

"As regards treatment, I believe in local applications, and most emphatically in the internal administration of calomel or corrosive sublimate, and large doses of alcohol and of tincture of the chloride of iron, quinine, and nourishment. In a certain form of sore throat of which I have seen a great deal, there was a pseudo-membranous formation on the tonsils, the anterior half-arches being free. These cases seem to be doubtful ones, but the disease runs on and the patients get into a septic condition. In such cases I have used on the throat a four-per-cent. solution of the cocaine salicylate, followed by the application of diluted tincture of the chloride of iron (one to five) in which a small piece of alum had been dissolved. The cocaine relieved the pain and sensibility of the pharynx, while the tincture of iron coagulated and caused shrinking of the deposit on the tonsils. In these cases, and also in diphtheria, I employ a handkerchief wet with cold water to the throat. The cocaine salicylate is chosen on account of the value of salicylic acid in low forms of disease. It is a suggestion of Dr. A. A. Randolph, and the preparation I use was given me by him."

Dr. Parish: "There are two conditions which occur in diphtheria which render chloroform dangerous. In advanced cases there is fatty degeneration of the heart, and the depressing action of chloroform on the heart may cause its sudden stoppage. Again, in the condition of heart-clot chloroform would be injurious. The objection to ether is its irritating effect on the respiratory tract; but it seems to cause only a slight additional risk.

"I have seen in the last few years scores of cases of the affection described by Dr. Keating, and have not seen a fatal case, and there has been no necessity for tracheotomy. I used large doses of the tincture of the chloride of iron with potassium chlorate, giving twenty drops of the tincture of the chloride of iron with three grains of potassium chlorate in a tablespoonful of water every hour to a child four or five years of age, where there is considerable deposit giving it day and night. When the throat begins to clear, the frequency of administration is diminished."

Dr. Jurist: "I wish to offer a suggestion as to the possible cause of difficulty sometimes met with in the removal of the tube. This is diphtheritic paralysis of the laryngeal muscles."

Dr. William S. Stewart: "I have used with much satisfaction a combination of the potassium chlorate with ammonium chloride in the treatment of membranous croup. This is given in as large doses as the child can bear, and alternated with quinine. In diphtheria I also use potassium chlorate with tincture of the chloride of iron, and also Monsel's solution as a topical application. I think that if the statistics of those cases which would recover without the operation were compared with the statistics of those cases which recover after the operation, the difference would be very slight. In one case I called to see a patient three times with the intention of performing tracheotomy, but the operation was refused, and the patient recovered. It is difficult to estimate how often this operation is done unnecessarily."

Dr. R. J. Levis: "The more experience one has with tracheotomy, the more reluctant is he to perform it. Looking back on the array of my own cases, I see nothing encouraging. My first operation was successful. Then I went to the twelfth before I had another success; then to the sixteenth, which was the next success, and to the nineteenth before I obtained a fourth success. This is only four successes in nineteen cases.

"As regards anæsthetics, I consider ether a safe anæsthetic for the performance of tracheotomy. In the stage of partial asphyxia the child is easily anæsthetized. I have used it in all cases excepting those which were in a state of natural anæsthesia which precedes death. The hemorrhage is usually slight, and then only venous, except when the isthmus of the thyroid gland is cut, which I do not hesitate to do, cutting exactly through the centre and ligating it. I have seen some

trouble from venous hemorrhage, and in such cases have at once stopped the bleeding by making linear compression on each side of the trachea.

"With regard to trypsin, which has been spoken of by Dr. Keating, I hardly think that it is of much service. The cases which I have seen die after operation have all died in the same manner. Death has always occurred between the second and fortieth day. It has not resulted from obstruction of the larynx, but the symptoms always indicated that the disease had extended to the bronchial radicles, inducing deposits in these situations. I scarcely think that trypsin applied in the form of a spray would influence deposits in the bronchial radicles.

"I have been in the habit of using flexible metallic tubes, but lately incline to adopt another expedient, which consists in passing a suture through the edge of the tracheal wound and then through the deep tissues and integument at any distance from the wound. The thread or wire is then applied on both sides, and the tracheal opening held open by the deep subcutaneous sutures. This I think better than the tubes, which are troublesome. Many lives have been lost by plugging of the tube from want of proper attention."

Dr. H. R. Wharton, in closing the discussion, said, "So much time has been occupied in the discussion of the paper that I will refer to but one or two points. I consider Dr. Keating's remarks in regard to the heart-complications in diphtheria as very important, and think that many cases dying soon after operation die from heart-clot. Within a week I have seen a child of two years die within twenty-four hours after tracheotomy for diphtheria, and think that death here was due to this cause, as there was no apparent respiratory trouble.

"If I used any anæsthetic, it would be ether. I have seen alarming symptoms developed during the administration of ether which necessitated the removal of the anæsthetic.

"In regard to the difficulty in the removal of the tube, it is probable that in diphtheritic cases there is paralysis of the laryngeal muscles, as Dr. Jurist suggests; but the same trouble follows the operation for the removal of foreign bodies, showing that this is not an adequate explanation. In one of these cases the body removed was a grain of corn, and this patient was under observation for four months, and when the case was lost sight of the tube was still worn.

"In reference to early operations, it is possible that, if the operations were performed early, some patients would have their tracheas opened who would have recovered without operation: still, there are many statistics to show that cases can be saved by tracheotomy which would otherwise die.

"It is important to fix the time when the operation should be performed. When the respiratory action becomes embarrassed, and there is stridor in the breathing, with retraction of the lower ribs and the supra-sternal space, the time for operation has arrived."

Dr. H. Leaman exhibited a dynamometer of his own devising, and the meeting adjourned.

PATHOLOGICAL SOCIETY OF PHILADELPHIA.

THURSDAY EVENING, January 22, 1885.

The President, Dr. SHAKESPEARE, in the chair.

Two cases of nævus pigmentosus. Presented by G. E. DE SCHWEINITZ, M.D.

THE first of these specimens is one removed from the face of a patient by Dr. John Ashhurst, in the University Hospital. The man was aged about 40 years, and the tumor took its origin in an ordinary mole, which, under the stimulus either of external irritants or undue manipulation, grew into a slightly raised mass with flattened top and constricted base. After Prof. Ashhurst had excised the growth, I made a microscopical examination of it, with the following result. The uppermost portion of the tumor is densely pigmented, and the pigment is further seen to be of a brown or brownish-black color, and contained in spindle- or round-cells, or to exist as free nuclei or granules. These pigmented spindle-cells sometimes are arranged so as to form the boundaries of alveoli, which are in their turn filled with moderately large, unpigmented lymphoid cells. The base of the mass shows a small-cell infiltrate, enlarged sebaceous glands, and a massing of the epithelium of the part, forming the appearance of squamous epithelioma. Below, the fat and subcutaneous tissue present nothing abnormal. This growth may be classed, I think, as an hypertrophied mole having an epitheliomatous base.

The second specimen was removed by Dr. Agnew from the back of a man, also a patient in the University Hospital. This tumor developed from a mole, and grew as a papilla-shaped excrescence above the surrounding skin-level. Microscopic examination of the mass showed it, like the former one, to be composed of a densely-pigmented tissue, largely made up of spindle-cells and free granules. Among the interstices of these were numerous blood-channels filled with corpuscles. No malignant change at its base was noted, and the surrounding skin was normal. Ziegler, in his recent work on Pathology, speaks of the not infrequent occurrence of melanotic and alveolar sarcoma in cellular warts and pigment-spots, and certainly some parts of the specimens from the first case are strongly suggestive of a sarcomatous structure.

2. *Urethral polypi.* Presented by Dr. DE SCHWEINITZ.

These specimens of urethral polypi were removed from a patient with the following history. Mr. X., aged about 30 years, contracted gonorrhœa, which was unusually stubborn and prolonged in its course. The disease had lasted about five months when I first saw the patient. He was then suffering, on account of some imprudence, from a moderately sharp attack of cystitis. Having recovered from this and from the acute symptoms of the exacerbation which had probably caused the cystitis, he returned to his former condition of a drop or two of purulent discharge in the morning, which no treatment seemed to relieve. Suspecting then that the long-standing discharge, the diminished calibre of the stream of urine, and the feeling of weight in the perineum might be due to a polypus, I explored the urethra with an improvised endoscope, and found first two and later these three polypi, removed them, and had the satisfaction of seeing a cure follow this treatment. They were all situated within the first three inches of the urethra. I think no doubt these little tumors are papillomas, and belong to the more common varieties of new growths which are seen in the male urethra. A single examination of them with a pocket lens reveals quite nicely their dendritic formation. Tumors of the urethra, in the male at least, are usually stated to be of rare occurrence, although, as William Belfield, of Chicago, has remarked, they may not be so rare as is usually supposed, as the urethra is seldom systematically examined upon the post-mortem table. Belfield himself, in a series of seventy autopsies, discovered two urethral tumors.

Slides from an adenofibroma of lachrymal gland. Presented by Dr. G. DE SCHWEINITZ.

These sections were made from a tumor of the lachrymal gland which was removed by Dr. Agnew. The growth occurred in a young man, was of five years' duration, and painless, having been situated in the upper and outer part of the orbit. The eye was sightless from atrophy of the optic nerve. The tumor, which was about the size of an English walnut, was surrounded by a dense fibrous capsule; the main body of the growth was composed of fibrous tissue, through which the remains of the gland-tissue are seen. The epithelium is in places in a state of proliferation, but apparently no formation has taken place which could be justly characterized as malignant. The tumor may be classed, I think, as a fibroma or adenofibroma of the lachrymal gland.

Specimens from excision of the astragalus for caries, etc. Presented by Dr. C. B. NANCREDE.

Elmer —, æt. 9½ years, had for some years suffered from characteristic symptoms of strumous disease of the astragalus, the details of which it is unnecessary to give. Early in November, 1884, he began to have chills, severe pain in the ankle-joint, which now became swollen, hectic, and profuse diarrhœa. Although I had never been able to detect dead bone by the probe, I felt convinced that an abscess, the result of carious bone, had ruptured into the previously only slightly diseased ankle-joint. I accordingly under ether examined the ankle-joint, which I found contained a considerable quantity of very offensive pus, which communicated with a cavity lined with carious bone, situated between the astragalus and os calcis. I excised the astragalus and scraped out the carious external malleolus, as well as the roughened surfaces of the tibia. The boy has since done well.

Dr. M. LONGSTRETH presented the following specimens, the notes of which, with the discussion, not having been placed in the recorder's hands as yet, will appear in print at a future time.

1. *A kidney preserved as to color and texture by ordinary illuminating gas.* 2. *Sarcoma of the femur removed by amputation by Dr. J. H. Brinton.*

Pyelonephritis and chronic parenchymatous nephritis in the same patient, complicating cystitis. Presented by Dr. J. TYSON.

E. D., a prostitute, æt. 25, white, was first admitted to the Philadelphia Hospital September 10, 1883. She was at that time suffering from diarrhœa, and stated that she had previously passed blood, although apparently none was passed after admission. She had no symptoms which attracted attention to the urinary organs, and no examination of the urine was made. The history of the case at present attainable does not show whether or not she had had gonorrhœa. Her diarrhœa disappeared under treatment, but she regained strength slowly. She was discharged October 4, 1883, apparently in fair health, but was readmitted on October 25, 1883. She now presented œdema of the legs and face, and an examination of the urine made about this time disclosed the presence of pus. She complained of pain in the lumbar region and in the head, and was much debilitated. The treatment was directed to warding off a threatened uræmia. The dropsy disappeared, but her other symptoms progressively increased until death relieved her. She died with symptoms of uræmia.

Autopsy, December 2, 1883. — Nothing noteworthy in external appearance; slight pleuritic adhesions; thoracic organs otherwise normal. Abdomen: peritoneum normal; liver normal; spleen not examined. Kidneys: left, typical large fatty organ; right, swollen to more than twice its normal size; when opened found to present a marked pyelonephritis with great distention of the pel-

vis; the calyces filled with pus partly fluid and partly inspissated; bladder was in a condition of chronic cystitis. Cause of death, pyelonephritis with large white kidney.

Dr. TYSON said that the chief interest attaching to the specimens lay in the association of these two very opposite conditions,—apparent pyelonephritis, or suppurative interstitial nephritis, with chronic parenchymatous nephritis. The former condition is a well-recognized result of cystitis; the latter not. Dr. Tyson had never before met these conditions in association. Usually as a result of a long-continued cystitis, however induced, we have a suppurative nephritis of one or both kidneys, but never, so far as he knew, suppurative nephritis. He thought the most reasonable explanation of the association was that of coincidence; that there had existed previously, perhaps, a chronic parenchymatous nephritis; that upon this a cystitis had supervened, and upon this a pyelonephritis.

Dr. TYSON said that he would like to ask the members whether they had ever found association of these two varieties of diseased kidneys with cystitis.

Dr. FORMAD thought he had seen one such case, but there was no history.

Dr. OSLER said that the condition of this kidney is not infrequently met with in persons dying of intercurrent affections, and that he should not interpret the case as previous speakers had done. The kidney-disease was probably of many years' duration, the cystitis was secondary to it, and the other kidney, affected with parenchymatous nephritis, had become subsequently diseased. It was well known that the ordinary scrofulous kidney, with pus in the urine, etc., often lasts for many years, ending in general tuberculosis or inspissation of the pus. He would like to ask how long pus had been observed in the urine, the state of the bladder, and whether there were other findings or tuberculosis in the various organs.

Dr. TYSON replied that he was in the possession of no definite facts as to the duration of pus in the urine. The case had only been under observation for three months, and certainly pus had been detected two months before her death. C. B. N.

(Owing to unavoidable circumstances, a portion of the discussion in which various explanations differing from Dr. Osler's were given has to be omitted.—RECORDER.)

NEW YORK ACADEMY OF MEDICINE.

A STATED meeting was held February 19, 1885, A. JACOBI, M.D., President, in the chair.

ELECTRICITY AS A STIMULANT IN RESPIRATORY AND CARDIAC FAILURE.

A paper with the above title was read by Dr. CASPAR GRISWOLD. By electricity he referred to the faradic and galvanic currents, but more especially the faradic, as being more applicable in cases of emergency. The author asked the question, Can electricity be so applied clinically as to stimulate the heart? Before answering the question he referred to the nervous mechanism of the heart, stating the well-known facts that if the external nerve-supply were divided the heart would continue to act by the influence of its immediate nerve-supply; also the inhibitory influence of the pneumogastrics, which, if stimulated sufficiently, would stop the action of the organ in diastole; also the accelerators, which, when stimulated, caused increased rapidity of cardiac action at the expense of power. He then stated that in order to stimulate the heart with electricity the current must be applied directly to the organ. To apply the current to the nerves in the neck would do the opposite of increasing the blood-flow. Therefore the question asked, Can electricity be so applied clinically as to stimulate the heart, must be answered in the negative. He then recited two cases which had been reported in the medical journals in which an attempt had been made to stimulate the heart by applying the current over the pneumogastric, in one of which, a case of poisoning by hydrocyanic acid, it was claimed that the patient's recovery was due to the stimulating influence exerted by the current upon the heart; but Dr. Griswold thought this was impossible, and said the reason why a fatal issue was not caused by the strength of the current said to be applied was due either to lack of working order of the battery or to paralysis of the pneumogastrics and their consequent failure to respond to the electrical current. It might be possible, in a case in which there was cardiac failure due to over-rapidity, that stimulation of the pneumogastric would make the organ act more steadily; but the theoretic benefit to be obtained by depressing the heart by this means would not be justified.

It was perfectly rational that by stimulation of the phrenic nerves respiration might be stimulated: experiments had plainly proved this fact. But clinically it was not so easy to apply the current to the phrenic nerve alone, as it was in such close relations to the pneumogastric in the neck that both were liable to be affected equally, and thus we would have depression of the heart, which would probably more than counteract the benefit to be derived from stimulating the respiration. At any rate, these points should be borne in mind in attempting to stimulate the respiration by applying the current to the phrenic nerves: first, that stimulation of the phrenic nerve should never be undertaken without a clear understanding that the current at the same time reached the pneumogastric; second, only a mild current should be applied, and the effect upon the heart's action should be carefully watched; third, avoid sudden application to the neck of a current sufficiently

strong to produce pain or muscular contraction in other parts of the body.

Dr. Griswold then gave details of certain experiments which he had made upon dogs, in which the pneumogastric and phrenic nerves were stimulated after the administration of certain poisons, as aconite, opium, chloroform, and ether. In aconite-poisoning the pneumogastrics were paralyzed, and electrical stimulation of these nerves produced no influence upon the circulation. In chloroform-poisoning a comparatively light current caused the heart to stop in diastole, the pneumogastrics responding normally upon an already depressed heart. In ether-poisoning the heart stood stimulation of the pneumogastrics as well as in health. He here remarked that chloroform was a cardiac depressor, while ether had no such effect, as had been conclusively proved by experiments. In opium-poisoning there was even less danger from stimulation of the pneumogastrics than in health, and it might consequently be perfectly safe to stimulate the phrenic nerve in cases of opium-poisoning. If, however, morphine were injected directly into the veins of a dog, the heart's action would be so depressed that it would not be safe to employ electrization.

Dr. A. D. ROCKWELL, being requested to open the discussion, said he thought electricity would be more especially valuable as a stimulant in respiratory than in cardiac failure. The electrical current acted with unequal force according to whether it were applied to the right or the left pneumogastric nerve. Some years ago he made some experiments, applying the electrical current to the breast through needles after removal of a tumor for cancer, and he then found that the immediate effect upon the heart was depressing, but the secondary effect was to increase the heart-rate. Theoretically, the precautions thrown out by the author were well founded, but practically electricity might be employed with a greater degree of immunity from danger. He referred to a case of opium-poisoning, seen with some other physicians a number of years ago, in which the electrical current caused an increased respiratory and cardiac rate, but after about two hours it had a less marked influence, although when it was discontinued the respiration and circulation diminished. After four or five hours they gave up their efforts, supposing the patient must die; but she lived nevertheless.

Dr. FORDYCE BARKER made some remarks relative to collateral questions raised in the paper. The author had stated that chloroform was a cardiac depressor while ether was not. For as many as twenty-five years Dr. Barker had observed that chloroform could be administered with immunity from danger during labor, whereas in general surgical practice, where the patient was depressed from a contemplated operation, ether should always be chosen in preference to chloroform. Even in organic disease of the heart he did not fail to administer chloroform in cases of labor calling for an anæsthetic. It was not until comparatively recently that this point regarding the choice between chloroform and ether in different classes of cases had been in any way placed upon a scientific basis.

Dr. R. W. AMIDON had little to say other than in commendation of the remarks of the author, and said he thought the precautions thrown out with regard to electrization of the neck were highly proper, inasmuch as most emergency cases were seen only by the general practitioner, who might have little knowledge of the special anatomy and physiology of the nervous mechanism of the heart and the influence of electricity.

Dr. L. PUTZEL did not think the clinical points made in the paper were in accordance with facts. It was impossible, for instance, to speak correctly of galvanism of the pneumogastric nerves in the human subject. The best specialists of the present day did not speak of galvanization of the pneumogastric, but of the neck. As to the evil effects of strong currents applied in this situation, he had not witnessed any upon the heart. In a number of cases in which he applied the current over the region of the pneumogastrics for exophthalmic goitre he had noticed no immediate effect upon the circulation. With regard to faradism in opium-poisoning, it certainly proved of no benefit in one case in which he employed it, but it was true also that his patient was obese, and the current may not have penetrated the fat so as to influence the nerves beneath.

Dr. J. L. CORNING took exception to the remark of Dr. Putzel that one could not apply the current to the pneumogastric or phrenic nerves clinically in the human subject, and said that by means of his apparatus his friend Dr. Chichester had been enabled in a case of goitre to reduce the heart-beat from one hundred and forty to eighty per minute within a comparatively short time.

Dr. A. H. SMITH thought that in opium-poisoning the object in view in the use of electricity was to stimulate respiration, and in order to do this without depressing the heart the current should be passed for but a moment at a time. He also thought that physicians under the excitement of the moment were sometimes poor judges of the normal rapidity of respiration: the patient seemed to breathe more slowly than he did in fact, and thus flagellation was carried even to the extent of producing depression.

Dr. PUTZEL remarked, in reply to the criticisms of Dr. Corning, that he did not mean to say galvanization of the neck could not produce slowing of the pulse, nor that galvanization of this region might not be galvanization of the pneumogastric, nor that galvanization was not useful in exophthalmic goitre.

The PRESIDENT some years ago used electricity in a large number of cases of still-born children for the purpose of producing the respiratory act, and ten or twelve years ago communicated a paper on the subject to the New York obstetrical practice. Like Dr. Smith, he found that continued application of the current had a baneful influence, but by applying the poles here and there over the region of the respiratory muscles, letting them remain in contact with the surface for but a moment, the influence was to produce respiratory effort, and was beneficial.

Dr. ROCKWELL wished to emphasize the remarks of the President concerning the importance of short applications of the current.

Dr. GRISWOLD closed the discussion, reviewing the points made in his paper, and also spoke of the experiments which had shown that chloroform was a local anæsthetic, and particularly a depressor of the heart, while ether was not.

DESCRIPTION AND PRACTICAL DEMONSTRATION OF THE PRACTICAL WORKING OF ROBERTS'S IMPROVED ELECTRO-OSTEOTOME; A NEW FORM OF PORTABLE STORAGE BATTERY; AND AN ELECTRICAL ILLUMINATING APPARATUS. BY MILTON JOSIAH ROBERTS, M.D.

The electro-osteotome, which had been greatly improved, was first described in the *Medical Record* for October 22, 1883. It consisted of an electro-motor, propelled by a strong current of electricity passing through the shaft, to the distal end of which could be attached one of two heads with suitable gearing for driving a buzz or trephine saw. Dr. Roberts had performed six osteotomies upon one patient in the short space of only thirty-two seconds. In the demonstration the hardest thigh-bone was divided in four seconds. The instrument was swung on a rubber elastic or metallic spring, enabling one to obtain all the delicacy of touch furnished by the probe. To the electro-osteotome was attached an electric light and mirror for night-operations. Dr. Roberts also exhibited a head-mirror with an electric illuminator, devised by Dr. Jarvis.

Remarks in admiration of the practical working of the instrument were made by Drs. Corning, Jarvis, Birdsall, and Holcombe. Dr. Poore said he had always found the chisel satisfactory in osteotomies, and doubted whether the saw would offer many advantages. Dr. Fanning also made some remarks.

THE REFLEXES IN CHOLERA.—From careful examination of seven cases of cholera, in every one of which the reflexes were exaggerated, Josias concludes that in cholera, as in typhoid fever, there is probably a constant increase of reflex excitability of the cord.—*Le Progrès Médical*, 31st December, 1884; *Edinburgh Med. Jour.*

REVIEWS AND BOOK NOTICES.

TRANSACTIONS OF THE ACADEMY OF MEDICINE IN IRELAND. Vol. II. Edited by WILLIAM THOMSON, M.A., F.R.C.S., General Secretary. Dublin, 1884.

In 1882 a movement was inaugurated for the amalgamation of the various medical societies of Dublin, and it was finally arranged that they should meet as sections of the Academy of Medicine, and that in order to encourage work in other special departments sub-sections under the titles of Public Health and of Anatomy and Physiology were established.

The opening meeting was held in December, 1882, and since then the sessions have been regularly held, the weekly meetings being under the charge of the several sectional councils in regular rotation. The present volume contains the transactions for the session of 1883–84, with the communications arranged under the various headings of the sections,—medical, surgical, obstetrical, pathological, and the sub-sections of public health and of anatomy and physiology. These papers, which aggregate about seventy-five in number, are generally brief and to the point, and many of them are of unusual interest and value, and abound in useful and practical remarks upon pathology and treatment. The volume is well printed, and has a number of excellent illustrations.

ELEMENTS OF PRACTICAL MEDICINE. By ALFRED CARTER, M.D. Lond. Third Edition. New York, D. Appleton & Co., 1885. Pp. 447, small octavo, cloth.

This synopsis of practical medicine has been well received by the profession, and we need only announce that it has reached its third edition. Condensed into small compass, yet readable and connected, it supplements larger treatises by giving the elementary principles and main facts of this department of medicine.

ECZEMA AND ITS MANAGEMENT. A Practical Treatise based on the Study of Three Thousand Cases of the Disease. By L. DUNCAN BULKLEY, A.M., M.D. Second Edition. New York, G. P. Putnam's Sons.

This work we had the pleasure of noticing favorably on its first appearance. The present edition has been carefully revised, special effort being made to simplify the subject and make more clear the practical suggestions. For the permanent cure of eczema it is essential that its constitutional nature shall be recognized and its internal relations and modifying elements properly understood. Dr. Bulkley defines eczema as a non-contagious, inflammatory disease of the skin, of constitutional origin, acute or chronic in char-

acter, manifesting any or all the results of inflammation at once or in succession, and accompanied by burning and itching. The treatment recommended is in accordance with this view of the pathology of the disease. The work is to be commended for clearness and directness of statement, and for its judicious treatment of a disease that has often been misunderstood.

MESSRS. LEA BROTHERS & Co. have issued a handsomely printed octavo volume, bound in cloth, entitled "One Hundred Years of Publishing, 1785–1885," in which the history of the house, founded in this city by Mathew Carey a century ago, is traced to the present day. The account shows the gradual development of a great publishing business, which has rendered lasting service, in this country, to medical education, as well as to other departments of science.

GLEANINGS FROM EXCHANGES.

PNEUMONECTOMY.—Dr. Chas. E. Jennings writes to the *British Medical Journal* that from some operations performed on the cadaver, made in accordance with the suggestion recently made by Sir Spencer Wells, he has demonstrated the feasibility of removal of a part or the whole of a lung. The details are as follows:

The root of the lung can readily be reached from behind, through a triangular aperture in the chest-wall, made in front of the scapula. The subject having been placed in a suitable position, with the scapula drawn upwards and outwards, an incision four and a half inches long was made parallel to and two inches from the median line of the body, commencing opposite to the third dorsal spine. The skin, fascia, rhomboidei minor and major, and some fibres of the trapezius and latissimus dorsi, were divided. From the lower extremity of this incision another of similar length was made obliquely downwards and outwards along the upper margin of the eighth rib. The vessels divided by these incisions were of inconsiderable size.

The flap, which consisted of skin, scapula, and soft parts, was now thrown outwards and upwards, so that an interval on the chest-wall was cleared, which corresponded to the fifth, sixth, and seventh ribs, with their intercostal spaces. These ribs were divided transversely in the line of the first incision, and again rather obliquely along the line of reflection of the flap. A triangular aperture was made in the thoracic parietes, which afforded ready access to the root of the lung. By such an operation abundance of space can be gained for the extirpation of the lung; subsequently, efficient drainage would be provided for, and the aperture in the chest-wall would be well protected by the scapula.

Another operation was performed on the front of the chest. An incision four inches in length was commenced parallel with the lower border of the first rib, and carried outwards towards the coracoid process. The skin, fascia, and pectoralis major were divided. A vertical incision was made from the third costo-chondral junction below to the inner extremity of the horizontal incision above. The upper border of the pectoralis minor having been depressed, the second rib was divided, first close to the outer extremity of the horizontal incision, and again through its chondral attachment. The intercostal muscles having been carefully divided in the lines of the cutaneous incisions, a flap, consisting of skin, fascia, pectoralis major, part of the second rib, and intercostals, was thrown down, and the parietal layer of the pleura was divided. Free access was thus gained to the lung, and the aperture in the chest-wall was quite large enough to permit the removal of a large part of the organ.

In conclusion, so far as can be stated from these operations on the dead body, it does not appear that pneumonectomy, in actual practice, would be an extraordinarily difficult operation, and the entire lung could readily be removed by the first, or the upper portion of it, by the second, procedure.

It is not often that pneumonectomy becomes the subject of consultation, though, in consideration of the large number of times a lung has been removed in the lower animals with impunity, the operation would, under certain circumstances, be indicated; and pneumonotomy, as Sir Spencer Wells said in his letter, might be performed more frequently than it is, with hopes of advantage, in cases of pulmonary cavities and gangrenous lung.

SUCCESSFUL TREATMENT OF THREAD-WORMS.—Dr. Millard, of New York, in a communication to the *Medical Record*, calls attention to the fact that the habitat of the oxyuris, or thread-worm, is not the rectum, but, as pointed out by Cobbold, in the colon, and especially the cæcum. In the treatment of a case of a lady 23 years of age, after injections and local treatment had entirely failed, he obtained a rapid cure by administering forty-five drops of Parke, Davis & Co.'s fluid extract of pomegranate-root before each meal; santonine (gr. iss–ij) between meals and at bedtime, with sulphate-of-soda-waters (Pullna, Marienbad) before breakfast, to cleanse the mucus from the intestinal tract.

WINE OF COCA IN FATIGUE.—Dr. E. R. Palmer contributes to the *American Practitioner* for February an account of a physiological experiment made during a walking-match, upon the effects of coca in sustaining the system under prolonged muscular effort. The subject was a young girl of seventeen

years, who was a professional pedestrian, but who was much reduced in strength by poor food and too great reliance upon alcoholic stimulants. The effects of the coca in sustaining muscular vigor were very marked. About a pint of the wine of coca was consumed. The distance travelled was three hundred and fifty miles in seven days.

PEPSIN AS A SOLVENT OF BLOOD-CLOTS IN THE BLADDER.—The editor of the *Northwestern Lancet* calls attention to a novel use of pepsin in surgery. In a case of distended bladder, when clotted blood prevented evacuation, he dissolved a scruple of Jensen's crystal pepsin in an ounce of warm water, and in less than twenty minutes had the satisfaction of seeing the patient pass a full stream of urine and disintegrated blood.

MISCELLANY.

AMERICAN MEDICAL ASSOCIATION.—The Thirty-Sixth Annual Session will be held in New Orleans, Louisiana, on Tuesday, Wednesday, Thursday, and Friday, April 28, 29, 30, and May 1, commencing on Tuesday, at 11 A.M.

"The delegates shall receive their appointment from permanently-organized State Medical Societies and such County and District Medical Societies as are recognized by *representation in their respective State Societies*, and from the Medical Department of the Army and Navy, and the Marine Hospital Service of the United States.

"Each State, County, and District Medical Society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number: *provided*, however, that the number of delegates for any particular State, territory, county, city, or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Secretaries of Medical Societies as above designated are earnestly requested to forward *at once* lists of their delegates.

Also, in order that the Permanent Secretary may be enabled to erase from the roll the names of those who have forfeited their membership, the Secretaries *are, by special resolution*, requested to send to him annually a corrected list of the membership of their respective societies.

OFFICERS OF SECTIONS.

["The Chairmen of the several Sections shall prepare and read in the general sessions of the Association papers on the advances and discoveries of the past year in the branches of science included in their respective Sections. . . . ."—*By-Laws*, Art. II. Sec. 4.]

Practice of Medicine, Materia Medica, and Physiology.—Dr. H. D. Didama, Syracuse, New York, Chairman; Dr. G. M. Garland, Boston, Massachusetts, Secretary.

Obstetrics and Diseases of Women and Children.—Dr. R. S. Sutton, Pittsburg, Pennsylvania, Chairman; Dr. J. T. Jelks, Little Rock, Arkansas, Secretary.

Surgery and Anatomy.—Dr. Duncan Eve, Nashville, Tennessee, Chairman; Dr. C. B. King, Allegheny, Pennsylvania, Secretary.

State Medicine.—Dr. E. W. Schauffler, St. Louis, Missouri, Chairman; Dr. J. N. McCormack, Bowling Green, Kentucky, Secretary.

Ophthalmology, Otology, and Laryngology.—Dr. J. A. White, Richmond, Virginia, Chairman; Dr. Eugene Smith, Detroit, Michigan, Secretary.

Diseases of Children.—Dr. J. H. Pope, Marshall, Texas, Chairman; Dr. S. S. Adams, Washington, D.C., Secretary.

Oral and Dental Surgery.—Dr. W. W. Allport, Chicago, Illinois, Chairman; Dr. E. C. Briggs, Boston, Massachusetts, Secretary.

"A member desiring to read a paper before the Section should forward the paper, or its *title* and *length* (not to exceed twenty minutes in reading), to the Chairman of the Committee of Arrangements at least one month before the meeting."—*By-Laws.*

Chairman of the Committee of Arrangements.—Dr. Samuel D. Logan, New Orleans, Louisiana.

PROPOSED AMENDMENTS TO THE CONSTITUTION TO BE ACTED UPON.

By Dr. C. H. Von Klein, Ohio:

1. No person who shall hereafter graduate from a medical college where literary education is not a prerequisite to such graduation shall be eligible to be a delegate to the American Medical Association.

2. All delegates to this Association, as a part of their credentials, shall present certificates from the County, District, or State Associations they represent, showing from what medical college and when graduated; but this provision shall not apply to delegates from the Army and Navy.

PROPOSED AMENDMENTS TO BY-LAWS.

By Dr. Foster Pratt, Michigan:

Each Section shall nominate its Chairman and Secretary,—all other nominations to be made, as now, by the nominating Committee.

By Dr. Carl Seiler, Pennsylvania:

Divide the Section on Ophthalmology, etc., and form two, one consisting of Ophthalmology alone, and one consisting of Otology, Laryngology, and Rhinology.

WM. B. ATKINSON, M.D.,
Permanent Secretary.

HONORS FOR WOMEN.—The Conseil Municipal has decided to admit women as house-surgeons in Paris hospitals.

WEST VIRGINIA STATE BOARD OF HEALTH.—We regret to notice the resignation of the able and indefatigable Secretary of the West Virginia State Board of Health, Dr. James E. Reeves, who finds the duties of the office becoming too onerous for his health. The Governor of the State, in reluctantly accepting the resignation, justly recognizes the value of the labors of Dr. Reeves and his associates, who have raised the standard of the profession, and through the operation of sanitary laws greatly aided the material welfare of the community. Dr. L. D. Wilson, of Wheeling, has been appointed to fill the vacancy.

GAILLARD'S MEDICAL JOURNAL.—We are glad to see that the publishers of *Gaillard's Journal* have secured the services of Dr. P. Brynberg Porter as editor, a position for which Dr. Porter's experience and attainments eminently fit him.

PAPINE is a preparation of opium, representing a strength of one grain to the drachm. Dr. F. O. Young, of Lexington, Kentucky, writes that it has a pleasant taste, does not excite nausea, and is the best preparation of opium that he is acquainted with.

NOTES AND QUERIES.

OBITUARY.

LOUIS ELSBERG, M.D., Professor of Laryngology at Dartmouth and in the New York Polyclinic, died at his home on February 19, 1885, of acute pneumonia occurring in the course of chronic nephritis. In his death the medical profession suffers more than we can estimate. Born at Iserlohn, Prussia, April 2, 1836, his family immigrated and settled in Philadelphia, where he graduated at the High School with the highest honors of his class in 1854. Three years later, after pursuing the regular course of study, he received the medical degree of Jefferson College. After serving as resident physician in Mount Sinai Hospital, New York, for six months, he went to Germany, where he was so fortunate as to become a member of Prof. Czermak's first class of pupils for the study of laryngology, in company with Stoerck, Lewin, and Semeleder. The enthusiasm of the young student led him to pursue with ardor the new department of medical science, and on his return, at the end of a year, he was already an expert in laryngology. With characteristic energy and signal ability he continued his studies, after very wisely deciding to commence practice in the city of New York. His career from this time forward was brilliantly successful. He was made a member of the faculty of the University Medical College in 1861, and held this position until 1878. Subsequently he accepted a similar position in the Dartmouth College and in the Polyclinic, both of which positions he held at the time of the occurrence of his rapidly-fatal illness. Dr. Elsberg was commonly recognized as the pioneer in his special department in this country. By him the first public clinic for treatment of diseases of the throat was opened in 1862. In 1880 he founded the *Archives of Laryngology*, with the assistance of Profs. Knight, Lefferts, and Cohen. In June, 1878, he was active in organizing the American Laryngological Association, of which he was the first president. Although Dr. Elsberg did not live to complete a systematic treatise upon laryngology, a task for which his attainments and analytical mind eminently fitted him, he made frequent contributions to medical literature which greatly enriched and advanced laryngology in this country. In 1865 a treatise by him on laryngoscopic surgery was crowned with a prize from the American Medical Association. His fondness for biological studies was frequently shown by papers which he read before scientific societies, of which we would especially mention the address delivered before the Alumni Association in the Jefferson Medical College in 1882, on "Changes in Biological Doctrines during the past Twenty-five Years," and one showing great originality and research entitled "The Structure and other Characteristics of Colored Corpuscles," before the New York Academy of Sciences. He was a member of many learned societies at home and abroad.

WILLIAM BRAITHWAITE, M.D.—The death of Dr. William Braithwaite occurred January 31, 1885, at his home, in Leeds, England. He was at the time of his death in his seventy-eighth year. He began practice of medicine in Leeds in 1830, and filled the post of honorary surgeon to the Eye and Ear Infirmary and lectured at the Leeds Medical School on the Diseases of Women. In the midst of a large practice he was interested in the literature of his profession, and in 1840 began the publication of the famous *Retrospect of Meaicine*, published half-yearly, which has now reached its ninetieth volume. It has been as highly appreciated in America as in England, and has been reprinted here since its first appearance. Dr. Braithwaite's son, who for the last twenty-five years has been associated in the work, will continue its publication, so that it will, as heretofore, be issued simultaneously in England and New York. Dr. Braithwaite attributed his excellent health during the declining years of his life to the fact of his being a total abstainer from alcohol for more than thirty years.

STRAPPING THE TESTICLE.

"A New Method of Strapping the Testicle" is the title of an article by William Barton Hopkins, M.D., in No. 449, vol. xv., February 7, 1885, of this journal. It introduces the use of india-rubber bands in place of the adhesive plaster in orchitis.

I am glad to see the attention of the profession drawn *again* to this method (the more so as the above-mentioned article is very comprehensive and complete), but in justice to myself and to medical history must claim the credit of the *original* introduction. (See my article on this subject in No. 11, vol. iv., December 13, 1873, of this journal.)

I am confident that Dr. Hopkins, in calling this method *new*, did not know of its having been tried and published by me eleven years ago.

I would have passed this small matter over were it not that we army medical officers, when on duty at military posts, have so few opportunities of making original observations owing to our generally limited field, that our little "should not be taken away."

I admit, however, that the proposition to apply the strips longitudinally, and fastening them to the encircling band with rubber cement, is an excellent *modification* of the method introduced by me in 1873.

ALFRED C. GIRARD,
Asst.-Surgeon U. S. Army.

[Elastic pressure for orchitis is certainly not new, but we think that Dr. Hopkins has suggested a novel method of its application, without at all intending to detract from the credit due to Dr. Girard for priority of introduction.—ED. P.M.T.]

OFFICIAL LIST

OF CHANGES IN THE STATIONS AND DUTIES OF OFFICERS SERVING IN THE MEDICAL DEPARTMENT U.S. ARMY FROM FEBRUARY 15, 1885, TO FEBRUARY 25, 1885.

BENTLEY, EDWIN, MAJOR AND SURGEON.—Relieved from further duty at Fort Clark, Texas, and assigned to duty as post-surgeon at Fort Brown, Texas. S. O. 17, Department of Texas, February 16, 1885.

PATZKI, JULIUS H., CAPTAIN AND ASSISTANT-SURGEON.—Leave of absence further extended seven months on surgeon's certificate of disability. S. O. 40, A. G. O., February 17, 1885.

TAYLOR, M. E., CAPTAIN AND ASSISTANT-SURGEON.—Assigned to duty at Fort Stanton, New Mexico, as post-surgeon. S. O. 29, Department of the Missouri, February 21, 1885.

PERLEY, H. O., CAPTAIN AND ASSISTANT-SURGEON.—Granted leave of absence for one month, to take effect about the 5th of March, 1885. S. O. 16, Department of Dakota, February 10, 1885.

ROBINSON, S. Q., CAPTAIN AND ASSISTANT-SURGEON.—Relieved from duty at Fort Spokane, Washington Territory, and ordered for duty as post-surgeon at Fort Klamath, Oregon. S. O. 23, Department of the Columbia, February 9, 1885.

KEAN, J R., FIRST-LIEUTENANT AND ASSISTANT-SURGEON.—(Recently appointed.) Assigned to duty at Fort Sill, Indian Territory. S. O. 23, Department of the Missouri, February 11, 1885.